

RADIO **AMATEUR**

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Journal of the Wireless Institute of Australia



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WICEN in NSW Fires

Tuned Feeders and Multiband Antennas

Hobbyfest 1993

A simple SWR Bridge

and much more

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Cover

Barry White VK2AAB and Jo Harris VK2KAA hard at work during the NSW fires. Administrative and personnel control for WICEN was conducted here in the shack of Jo Harris for 24 hours a day during the fires. See the article about the fires on page 4 of this issue.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Annual Reports

In this issue you will see some of the annual reports that will be considered at the Annual Federal Convention of the WIA which will be held at the end of this month. For myself this was my first report as Federal President, and also the last. When I stood for election to the position of Federal President at the last convention, it was with the intention of making myself available for election for a minimum of two years. Unfortunately, increasing commitments on my time, both business and private, have meant that it has become increasingly difficult for me to devote the time which the position requires if it is to be done properly. I have therefore notified the Federal Council that I will not be standing for re-election at this Annual Convention. I hope to be able to continue to serve the WIA in some other less demanding role. Whether this will be my last column depends on the deadlines for the next edition.

One pleasing event in the last month has been the resumption of meetings with the regulatory authorities, now in the form of the Spectrum Management Agency. The SMA was established last year and took over many of the functions of the old Department of Transport and Communications. Unfortunately, the birth of a new agency and the activity which it generated put most amateur matters well into the background. With things now settling back into a more normal rhythm at the SMA, meetings have been resumed and the SMA is keen to address some of the many matters which have been outstanding over an extended period, among them the new amateur licence conditions. It is hoped that we can start a semi-regular column in the near future to inform the membership of what issues are being discussed with the SMA and the outcomes which we are achieving. With any luck, the first instalment will appear in a couple of months.

Also of interest with the SMA at the moment is the Apparatus Licence Inquiry to which I referred in my last column. At its February quarterly meeting, the Federal Council considered the issues raised in the SMA discussion paper and, with input from FTAC, is preparing a paper for input to the inquiry. Preparation of the paper is being undertaken as I write this column and, despite the tight deadline, will be ready for submission to the inquiry by the deadline of mid March. This is one of those activities of the WIA at Federal level which often goes unnoticed by many, requires a significant amount of time and effort by quite a few people, but which is necessary to ensure the survival of our hobby.

Like the submission to the inquiry, much of the work undertaken by the WIA at the national and international level goes unmarked by many amateurs. It is surprising how much time and effort is expended by WIA members on a voluntary basis to ensure that the amateur side of issues is not forgotten

in the deliberations of bodies such as Standards Australia and the many committees and consultative groups which ultimately provide Australia's position at international meetings of the various components of the ITU. At this time, as the Annual Convention approaches, it is worthwhile giving thought to the many hours of work on your behalf which are finally distilled into the reports you read in this issue and which will be considered by the Federal Council at the Convention. We should all be proud of our many volunteers and the work they do on our behalf. If not for them, amateur radio would not be the fine hobby it is today.

Kevin Olds VK1OK
Federal President
ar

Editor's Comment

Ancient History?

In last month's Comment I made reference to the electrical and radio pioneers, Hertz, Branly, Preece, Lodge and Marconi. This produced varied responses from people in the office, some of whom had only heard of Hertz and Marconi, so it seemed worthwhile to provide a little more information about some of the early experimenters. Another response was from a reader with information

about one of Australia's earliest communication pioneers (of whom more in a later issue).

At this stage, what could be more appropriate than for a book on the earliest radio pioneers to arrive on my desk for review? At times one is forced to admit that there must be something in serendipity! Again, in a later issue there will be more to say about this fascinating book, but in the meantime it was a convenient source of information about all those who preceded Marconi.

To elaborate: Edouard Branly was a Frenchman who discovered in 1892 the principle of the coherer, an early radio wave detector using metallic particles. Lodge (1851 — 1940), who became Sir Oliver Lodge in 1902, was both an academic and experimenter,

Continued page 55

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1994 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7008	President: Rob Apathy Secretary: Len Jones Treasurer: Don Hume	VK1KRA VK1NLJ VK1DH 3.570 MHz LSB, 146.950 MHz FM, 438.525 MHz FM each Monday evening (except the fourth Monday) commencing at 8.00 pm.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 869 2417 Fax (02) 633 1525	President: Terry Ryeland Secretary/Treasurer: Roger Harrison (Office hours Mon-Fri 11.00-14.00 Wed 1900-2100)	VK2UX VK2ZRH From VK2W1 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 52.120, 52.525, 144.150, 147.000, 438.525, 1261.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay via a local 2 metre repeater. Sunday 1000 and 1915. Highlights included in VK2AWX Newcastle Monday 1930 on 3.593 plus 10mx, 2mx, 70cm, 23cm. News headlines by phone (02) 552 5188. Some broadcast text can be found on the Packet network.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 408 Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9251	President: Jim Linton Secretary: Barry Wilton Treasurer: Rob Halley Office hours Tue & Thur 0630-1530	VK3PC VK3XV VK3XLZ 1.840MHz AM, 3.615 SSB, 7.085 SSB, 63.900 FM(R) Mt Dandenong, 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 148.900 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1930 hrs on Sunday.	(F) \$72.00 (G) (S) \$56.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 264 9075	President: Ross Mairen Secretary: Lance Bickford Treasurer: David Travis	VK4AMJ VK4AZZ VK4ATR 1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz, 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President: Bob Allan Secretary: Laurie Hooper Treasurer: Bill Wardrop	VK5BJA VK5EA VK5AWM 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 148.5000, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 386 3868	President: Cliff Bastin Secretary: Ray Spargo Treasurer: Bruce Hedland-Thomas	VK6LZ VK6RR VK6OO 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.580, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Bussellton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$66.75 (G) (S) \$46.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015 Phone (002) 43 8435	President: Andrew Dixon Secretary: Ted Beard Treasurer: Peter King	VK7GL VK7EB VK7ZPK 146.700 MHz FM (VK7RHT) at 0630 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RWN), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (S) \$55.00 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown repeated on 14 or 20 MHz).			

Note: All times are local. All frequencies MHz.
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WICEN Activated for the Sydney & Central Coast Bush Fires

Dr Tony Farrow VK2JF*

Tony was asked by WICEN to write about the WICEN involvement in the recent disastrous bushfires. Tony stresses that this is not an official report, but has been written from his own personal perspective during the emergency.

Tony, who is 48 and married with three children (and a cat), lectures in physics at Macquarie University in Sydney and also carries out research in muscle biophysics. He has been an amateur for three years and is currently involved in setting up a packet wormhole (amateur packet radio/Internet gateway) at the university.

Tony served as specialist consultant in physics and electronics for the second edition of the Macquarie Dictionary.

Here are a few personal recollections of a hectic week shared with members of Sydney North WICEN. I haven't attempted to document all WICEN's activities during this time, but only those I observed myself, so apologies to all those who did a great job but don't get a mention here. During the week following Friday 7 January over 100 WICEN operators were active on the North Shore and Gosford working on ham bands as well as on the SES frequencies and the air band.

I had been meaning to join WICEN for some time but like many of us I kept putting it off. So for some others and myself, who lent a hand during the fires, the six days from Saturday 8 January involved a fair bit of on-the-job training. For me it began on Friday the 7th when I left the Macquarie University campus with my wife Ros for dinner with friends in Turramurra. We noticed 30 m high flames 100 m away at the edge of the campus moving fast in an easterly

direction down the Lane Cove National Park, and watched a helicopter dropping water scooped from the university lake. People were running from flats and commercial buildings, and luckily only two flats were damaged.

We must have been amongst the last to leave the area before the police closed the local streets. We drove down Lady Game Drive to Killara, and later learned that a firestorm had crossed the Ryde Road behind us some little time later and several houses in West Killara were lost. The following day I responded to a request on the Hornsby 2 m repeater for radio operators to help in what was becoming a rather serious-looking emergency.

For WICEN it began earlier on Wednesday 6 Jan when the state of the fires in the Central Coast area led to Central Coast WICEN requesting Sydney North WICEN to provide some operators on stand-by for duty in the Central Coast area. The next day two Sydney North operators were called in to man the Hornsby bushfire control.

The situation really warmed up at midday on Friday the 7th when WICEN was officially activated. The duty officer at the Sydney Northern HQ of the State Emergency Service (SES) informed Barry White VK2AAB of WICEN Sydney North that some of the SES UHF repeaters in the Central Coast area were out of action. WICEN was requested to provide a comms link between SES Sydney Northern HQ at Hornsby and the SES HQ at Erina near Gosford. Within a very short time this was provided via the Gosford VK2RAG 2 m repeater.

Central Coast WICEN was also asked to provide radio links between the SES at Erina and its mobile rescue units. This required a WICEN operator to travel on each of their vehicles; 2 m HTs were used and the links made through VK2RAG. These improved communications enabled more effective support for firefighting work, supply movement, road blocks and evacuations. Frequencies used were 2 m and 70 cm as well as the SES and air band frequencies.

Ian Rosser VK2XB, a well known local trucky, was drafted as an air traffic-controller for a helipad, using air band frequencies. He had something like 18 helicopters using his base with many of them in a very small local air space at any one time, often with poor visibility because of the smoke. Now that really is on-the-job training! Well done Ian.

Yours truly spent some time at the SES HQ at Hornsby passing



Waiting for an SES vehicle to collect equipment and personnel. Left to right are David Ramsay VK2KXLX and his boat, Jim Daly VK2XTN and Roger Henley VK2ZIQ sitting on an SES portable repeater.

messages between the SES controller for Sydney North and their personnel in the Central Coast area. Other sessions were spent at the local SES HQ at Ku-ring-gai standing in for tired SES operators and using the SES bands to pass messages between the SES controllers and their rescue vehicles.

We used 2 m as a link to SES HQ at Hornsby, and to WICEN's Personnel Officer Jo Harris VK2KAA, who spent many sleepless hours organising a continuous supply of amateur operators on rotating shifts. The SES HQ at Hornsby commands a district stretching from Sydney harbour to just north of Gosford, and was involved in monitoring the serious fires in Gosford, Lane Cove Park and Ku-ring-gai Chase. These very worrying fires threatened many suburbs, and although the result was a tragedy for those who were touched by them it could have been far worse but for the hard work, dedication and training of the many firefighters who came to our aid.

Sat 8th and Sun 9th were very busy



Ku-ring-gai SES Communications Room. Left to right, standing, are Barry White VK2AAB (Chairman District Emergency Management Organisation Communications committee, and past Sydney North WICEN Region Coordinator), Rex Willard (SES Ku-ring-gai Deputy Controller), and Allan Hedges (SES Ku-ring-gai Operations Officer. Left to right, sitting, are David Ramsey VK2KLX (Sydney North WICEN Region Coordinator) and Jo Harris VK2KAA (Sydney North WICEN Ku-ring-gai Local Coordinator).

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days. The fires burning at Gosford and Ku-ring-gai Chase were causing concern. The freeway to Gosford was closed by fires. Fierce fires crossed Mona Vale Road, linking St Ives to the coast, damaging both power and telephone lines. Young volunteers from the Seventh Day Adventist Church were compiling a data base of evacuation accommodation in case they were needed.

On many occasions people were evacuated from streets close to the anticipated path of the fire, but the feared large-scale evacuations were fortunately not necessary. At St Ives fires moved around the Showground several times, and the lovely wild-flower gardens were damaged. By Saturday forward commands had been established at Lofberg Oval in West Pymble and on the Village green at St Ives, so the fire brigade and SES controllers could be close to the firegrounds in the Lane Cove National Park and Ku-ring-gai Chase respectively.

The SES radios at these locations were manned by WICEN personnel. Everybody was amazed at the ferocity of some of the fires. Their direction changed as they raced into the many steep gullies that typify the North Sydney terrain, driven by strong winds and by their own heat. Fires crossed the Mona Vale Road destroying overhead cables and the road was closed several times to traffic.

At midday on Saturday the SES asked WICEN to get two portable UHF repeaters and some WICEN personnel into Gosford. A vehicle convoy set out on the freeway but turned back because of fires at the Hawkesbury River bridge. The Central Coast was completely cut-off by road. It was decided to attempt to get to Gosford by water, so David Ramsay VK2KLX, Regional Coordinator WICEN North, organised a group, colourfully designated Strike Force 1, to travel by road to Brooklyn on the Northern Shores of the Hawkesbury River, where they launched David's 6.4 m runabout.

Kevin Blume VK2BJK, Graham Sommer VK2DWL, Julian Sortland VK2YJS and three SES personnel stayed at Brooklyn with the intention of setting up an HF comms base

using the amateur bands. When loaded up with David, his crewman Brian Birrell VK2KTQ, and volunteers for the Central Coast, Mike Conradi VK2ETM, Roger Henley VK2ZIG, Jim Daley VK2XTN and Dave Horsfall VK2KFU, the 175 HP outboard pushed the boat at only half its normal top speed over the 20 km run to Gosford. The wind and choppy sea required the moveable ballast skills of Jim VK2XTN, who was selected for this duty by his large aptitude for the work.

After unloading the human and inhuman cargo at Gosford, David and Jim returned to Brooklyn only to find it surrounded by fire. Meanwhile the Brooklyn comms team had fallen back from the boat ramp at Parsley Bay onto the waterside at the township with most of the townsfolk (that is after the police had closed the pub!).

It was quite alarming for me at Hornsby HQ to hear the Brooklyn comms team describe a fire storm passing over a cliff near them, but I believe it was somewhat more alarming for them. David took his boat off shore again until the fires had passed. A fast ferry from Sydney harbour was sent to take out some of the townsfolk, whilst many fire tankers were clearing a way into town, and

eventually those who had stayed in town were escorted out in a road convoy.

Another volunteer, Garry Barker VK2TSR, was also rather interested in these proceedings and called VK2WIX, WICEN at Hornsby, from home on 2 m. He was due to collect his wife and family who were to arrive at Brooklyn on their cruiser after a two week holiday on the river. We advised that it might not be a good idea for her to call in at Brooklyn at that exact moment, but perhaps she should extend her cruise and find a smoke-free spot on the Hawkesbury to wait out the fires.

On Sunday the SES asked WICEN to provide intelligence on where the main fires were moving. They had been impressed by the information we had casually provided for them up to that time, gleaned by listening to the other services' emergency channels on our HT's. They needed up to date information so they could anticipate where their resources would be required.

From that point on one of us monitored the emergency service channels with a scanner, and plotted the progress of the fires on a situation map. Despite some difficulties with communications from time to time the emergency services showed that they



Brooklyn on the Hawkesbury River. The only way out is cut by the fire. Just after this photo was taken, the fire came down the hill to the back of the buildings and people were evacuated to Parsley Bay (the end of the road!). The car and boat belonged to David Ramsay VK2KLX. WICEN helper Brian Birrell VK2KTQ is standing alongside Roger VK2ZIG's vehicle — Roger was at Erina (Gosford) at the time.

were well trained and organised, and just got on with the job at the local level. I will never forget the looks on the faces of some of the youngsters after long hours at the firegrounds; they reminded me of those old photos of WW I troops returning from the trenches. I met many wonderful people, both in the emergency services and members of the public who offered food, accommodation and their help when required. It was an example of the highest form of

human cooperation, and raises one's faith in human nature.

I heard more than one WICEN member look back on their training with some thanks. So I guess those exercises where WICEN keeps tabs on the Sydney-to-Surf Fun Run or on a bike ride are not so silly. I can see how they could hone one's operating style and accuracy in passing information, quite different from a rag-chew, as I learned the hard way.

Well, if you have been thinking of

joining WICEN but, like me, just kept putting it off then do seriously consider joining up. Thanks must go to David Ramsay VK2KLX, Jo Harris VK2KAA and Barry White VK2AAB for doing such a great job of organising the WICEN response in my area. I do apologise to those people I haven't mentioned who also did a great job, but whom I didn't get to meet.

**12A Clarke Place Castle Hill NSW 2154*

BT

WIA News

1994 Wilkinson Award

Eddie Penikis VK1VP is this year's recipient of the distinguished Ron Wilkinson Achievement Award.

Given for "special achievement in any facet of amateur radio", the Award honours the memory and achievements in amateur radio of the late Ron Wilkinson VK3AKC.

Eddie has been designing, building, modifying, experimenting with and operating equipment on VHF and UHF since the late 1950s.

Eddie's successful work has established many significant distance records. He has pioneered both modes and propagation paths that are now taken for granted.

Much of the current interest in VHF and UHF owes its origins to the ground-breaking experimentation carried out by Eddie, both "in the field" and through his resolute dedication to the somewhat non-glamorous world of VHF-UHF work.

His consistent participation in field day operation made Eddie synonymous with Mount Ginini, Mount Franklin and numerous other promising sites which he exhaustively investigated. Eddie's meticulously prepared VHF-UHF portable station operations enabled numerous stations in Victoria, South Australia and often further afield, to make their first significant VHF or UHF DX contact.

Some of these first contacts cultured the interest and

fascination which subsequently led various amateurs to become attracted toward serious VHF experimentation, assisted and encouraged by Eddie's advice and leadership. Many of these amateurs, encouraged by Eddie's first contact with them, are the substantial backbone of the currently strong VHF-UHF scene.

His tenacity and thorough technical preparedness have, for example, taken 1296 MHz from relative obscurity as a band to another band which may be reliably used on a regular basis on paths up and down the East coast over distances of up to 1000 km.

The role of Eddie's well-equipped station has been of vital importance in maintaining the enthusiasm and perseverance vital to such long term projects as 1296 MHz experimentation. He maintains a reliable "frame of reference" in a field so devoid of experienced and dependable frames of reference.

For those hoping in some way to follow in his footsteps, his clockwork reliability to appear during field contests and work various field stations reliably throughout all bands, regularly into the early morning hours, and once again from dawn, demonstrates his continued awareness of the vital requirements to maintain activity in the VHF-UHF sphere.

Despite his numerous technical accomplishments and outstanding track record, little is heard of his pursuits.

"Apart from those of us who are first-hand observers and colleagues," said Chris Davis VK1DO, Ian Cowan VK1BG and Dick Elliott VK1KRE, who nominated Eddie for the Award, "there is unlikely to be an immediate appreciation of his talent and dedication."

"The depth of his understanding and experience definitely matches the very best in the field with his example to others being one of quite enviable competence."

The role Eddie has played at local, Divisional and Federal level has never wavered in his awareness of the long term and the bigger picture, developing the framework for culturing and maintaining the delicate foundation of VHF and UHF communications in terms of band planning, beacons, the role of satellites and so forth.

Eddie has never forgotten what it is like to be an experimenter. He consistently demonstrates this with his attention to technical excellence and an awareness of the need to support others who are treading the same path that he has obviously been down.

This is the second year in succession a VHF-UHF experimenter/operator has won the prestigious Wilkinson Award. Ron Wilkinson was, himself, a VHF-UHF pioneer and experimenter, also being one of Australia's earliest moonbounce (EME) enthusiasts and 1296 MHz operators.

Tuned Feeders and Multiband Antennas

J H Gizard VK5JG*

A radio signal is generated by a standing wave current flowing along the wire in an antenna. This current changes at a sinusoidal rate and the value I in a half wave antenna is shown by curve I in Fig 1. The voltage is shown by curve E . The impedance at any point is E/I and is shown by curve Z . Its value varies from about 70 ohms at the centre to around 3000 ohms at the ends.

The current to excite this standing wave can be fed into the antenna at any point along the wire and the usual way is by a two wire transmission line — a feeder. If the characteristic impedance of the feeder matches the impedance of the wave at the feed point the whole of the feeder current flows into the antenna and all the input power is radiated. If the impedance does not match, a proportion of the current, depending upon the degree of mismatch is reflected back into the feeder and this, together with the forward current, sets up a standing wave in the feeder and reduced power is radiated.

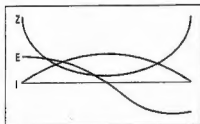


Fig. 1

The standing wave in the feeder is similar to the standing wave in the antenna in that it has high impedance points a half wave apart and midway between these points the impedance falls to a minimum. Thus, somewhere along the feeder, any particular value of impedance can be found and the standing wave in the feeder can be moved up the feeder to make a

selected value come to the antenna feed point to match the impedance of the antenna standing wave. When this is done, although reflections still occur, most of the power is eventually fed into the antenna and radiated.

In the example shown in Fig 2 a low impedance point in the feeder has been brought up to the low impedance point in the antenna to make a match. This has been brought about by using a matching device at the feeder input to adjust the impedance at the input to the value $a...a$ shown in Fig 2. The matching device, usually known as an antenna tuning unit (ATU), transforms the impedance of the transmitter output to the required impedance at the feeder input — $a...a$ in this case.

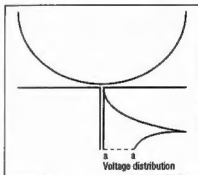


Fig. 2

When tuned feeders are used, the antenna need not be just a half wave long. It can have any length providing that the total length of the antenna plus that of each feeder wire is equal to, or greater than, a half wave at the frequency in use. For example, Fig 3 shows the impedance curves drawn for an antenna 2.6 half waves long with the standing wave impedance of the feeder matched to the standing wave impedance of the antenna at the mid point. The standing wave in the antenna will then move down the

feeder as shown and to bring this about the input impedance of the ATU must have the value $b...b$ shown in Fig 3.

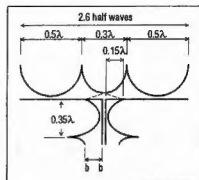


Fig. 3

One type of ATU is shown in Fig 4. This type is the simplest and is easiest to understand and tune. The capacitor tunes the coil to resonance but the match is made by the ratio of the turns on the input coil to the turns between the feeder taps.

If, for example, a 50 ohm transmitter output is to be transformed to a 1000 ohm feeder input the impedance ratio will be $1000/50 = 20$ and the turns ratio will be the square root of 20, say 4.5, so that if this ATU input coil has 3 turns, the turns between the taps will be around 14.

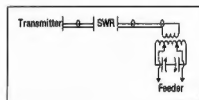


Fig. 4

The above gives a general idea of how a tuned feeder is matched to any antenna and as an example I will describe the setting up of a multiband antenna which I use. The dimensions of this antenna are shown in Fig 5. These dimensions will allow the antenna to fit into most back yards and let the number of ATU taps be reduced because one tap, at the coil ends, will match the 3.5, 7 and 14 MHz bands. For feeders I used 7/029 wire (because it was available) spaced 51 mm. The ATU used a

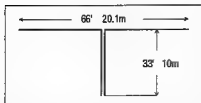


Fig. 5

1930s type broadcast receiver capacitor as the split stator unit. The coil was wound with 16 swg bare copper wire. A length of 2.4 metres was cut off and one end was gripped in the bench vice. The wire was straightened and cleaned with fine sand paper and the free end was hooked into a 2 mm hole drilled in a short length of 3/4 inch water pipe and under maximum tension the coil was close wound walking up to the vice. The coil was removed and light tension was applied between the coil ends until the air space between the turns was 1.5 mm and while the tension was maintained three strips of insulating material approximately 5 mm by 2 mm were glued along the coil with Araldite. A 3 turn input coil was laid over the coil centre but not glued at this time. The coil ends were soldered to the capacitor fixed plate terminals.

To test for the tap points on the coil two wedges were cut from 8 mm square brass rod. They were 25 mm long by 6 mm wide and tapered from a knife edge to 3 mm over the length. Short flexible leads were soldered to the wide ends of the wedges to join them to the feeder ends. One side of the wedges was coated with Araldite so that when they were inserted between the coil turns they made contact with one turn only.

To match the ATU to the feeders it was connected to the transceiver and with the transceiver on receive the taps were inserted across the coil and the dial swung until a noise maximum was heard. A switch was then made to CW transmit and the key held down while making an adjustment for best SWR.

The first setup was made on the 3.5 MHz band and the coil was trimmed so that the band tuned on maximum capacity. When the feeders were connected it was found that, on this band only, the capacity between the

feeders added to the tuner capacity and the number of coil turns could be further reduced to 19. This increased the range of the tuner at the high frequency end and the unit was later just able to tune to 28 MHz.

The input coil was then glued into place on the centre of the main coil and the setting of the taps proceeded as follows:

Band	Turns between taps	SWR
3.5, 7, 14, MHz	19	better than 1.05
10 MHz	5	better than 1.05
21 MHz	8	better than 1.05
24 MHz	3	better than 1.05
18 MHz	used tap for 10 MHz	1.5
28 MHz	used tap for 21 MHz	1.5

Permanent connection to the taps was made by soldering leads to the appropriate turn on the coil and taking the leads to banana sockets on the front panel for connection of the feeders. When soldering leads to the coil, adjacent turns were covered with aluminium foil so the solder could only adhere to the chosen turn.

After making this all-band HF antenna I tried the effect of feeding the antenna off centre and set up a similar antenna but with the feeder connected 11 ft from the centre. The results obtained for loading and SWR were the same as for the previous antenna except that the tapping points were different.

If the standing wave current curves for the off-centre fed antenna are drawn it will be seen that the feeder currents are unbalanced (Fig 6) and therefore the feeder will radiate.

A further test was made with the same antenna end-fed and again the antenna loaded fully with SWR close to 1:1 on all bands. The feeder

currents would be balanced on 3.5 MHz and its harmonic bands but would be unbalanced on the WARC bands.

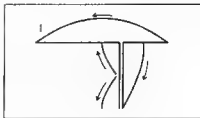


Fig. 6

The unbalance of the feeder currents causes the feeder to radiate. This would affect the radiation pattern but by how much I do not know.

As a result of studying the operation of tuned feeders and making these and other tests my ideas of tuned feeders have changed and I have become aware of some facts that I have never seen in handbooks. These facts are that if the length of antenna plus the length of each feeder wire is greater than a half-wavelength at the frequency concerned almost any combination of antenna length, feeder length, and feed point will function as a workable antenna. For example, I have an antenna used for 21 MHz which has a 22 ft vertical aluminium tube set up on the top of a 30 ft pole and fed by a 24 ft tuned feeder and I have found that it will fully load on 7 MHz and all higher frequencies.

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Hobbyfest 93 — A Win For Amateur Radio

Julie Kentwell VK2XBR tells the story of amateur radio at Hobbyfest 93*

Most people in this the so-called "Clever Country" have never heard of the hobby of amateur radio. The Gosford Field Day with its crowd of typically 2000 is merely an in-house event attracting no interest outside the hobby.

It is generally realised that people show more intelligence in connection with their chosen hobby or recreation than they exhibit in any other field of endeavour. This is quite logical; after all, what they do outside keeping the wolf from the door is normally the activity for which, overall, they are best suited. Many more people than do so now would embrace and enjoy amateur radio if it wasn't for the simple fact that they don't know it exists.

The Federated Leisure Activities Group is an organisation which, since February 1988, has sought to protect people in their non-sport recreational areas against the ravages of Government and bureaucratic excesses as well as endeavour to promote and publicise these non-sport activities; apparently with ever-increasing success. Such a success, and a major one at that, was the Hobbyfest 93 held over the October long weekend at Sydney's Eastern Creek Raceway. Here, any and all who had a hobby or recreation to display were invited to do so and yes, this included amateur radio; who else but the WIA could best represent our hobby?

When the ABC held their 60th Anniversary at Parramatta Park on Sunday, 1 November 1992 the WIA NSW Division was there with a display. A surprise was in store when, by arrangement, one operator had a CW contact with his friend. The view was that "this'll bore the pants off 'em, thank goodness it won't last long!"

How wrong can you be!

When the melodious sounds of CW floated forth from an external speaker, people came from all directions to look. Children with their noses flat against the glass, women with their families, all kinds of people, wanted to watch the "Magic of Morse". The point was taken. The big drawcards, as far as the populace at large was concerned, were amateur TV and "goode olde CW". Consequently, when the NSW Division's display at Hobbyfest 93 was planned, it included feature roles for these modes and, for the computer buffs, the ubiquitous packet radio.

Setting up the display occupied about seven hours of the Friday and about three hours of the Saturday morning. Much of the NSW Division's furniture was pilfered and carted away, as was the HF gear from the VK2AWI Parramatta station. The display took advantage of its position including a large window-wall, the HF

section of proceedings being set up to face out through the windows at passers-by and hopefully entice them inside. In this regard the amateur radio display differed from all others in that no other display used the huge windows at all. A large flag aloft proclaimed "Amateur Radio" to all and sundry while an even larger banner extolled the WIA's virtue to the world. Again, no other displays carried such banners.

Upon entering the chamber in which the display was housed, on one's right were two colour TV sets and a computer monitor amidst home-made television transmitters, power supply and a strange-looking packet BBS with covers missing and the overall impression of its "jam-and-onion filling" falling out. This masterpiece of technological expertise was actually the complete VK2XSO BBS, installed and operated by its owner/trainer Ashley because no-one else could quite decide which end was which; somewhat like modern art but a great deal more useful. The computer buffs loved it while the rest were totally confused.

On the first day of the exhibition the HF section of the WIA display must have appeared strange to most people who saw it and, indeed, it drew much attention thereby. The operator, Shan "Superbrat" VK2JSB (at the moment — his full call is just



Aub Tepp VK2AXT, John Turner VK2JTW, Julie Kentwell VK2XBR and Shannon Bathis VK2JSB at the WIA Hobbyfest 93 display.
Photo by Anthony Walters

around the corner) is your typical mid-teenager and would not be expected, in the minds of most, to be sitting happily at a "Bells And Whistles" radio (actually a Kenwood TS680S, but it looked much more impressive than a 27 MHz AM CB radio) banging away on a Morse key in what was obviously a genuine 2-way radio conversation. Nevertheless it was true and people found it rather fascinating.

On the second and third day the Morse operators were somewhat older people such as John VK2JWT, Terry VK2UX, Barry VK2FP and Julie VK2XBR. This notwithstanding, CW again proved its worth as a crowd-magnet. A notable CW QSO was with VK2SEA Albury, operator Terry, who explained that VK2SEA is an Australian Navy Amateur Radio Society (ANARS) callsign which is only activated during Navy Week and Coral Sea remembrance.

The HF was, overall, noisy and poor. Noise level on 40 metres was S6 all day and it isn't much fun trying for a contact in that. Two metres was unusable on the first day because two watts wouldn't go past the car park due to the huge concrete/steel building, even with a 5/8 antenna on the roof. A 25 watt afterburner, brought along on Sunday morning, fixed that problem.

The amateur TV section was the most complex, the most difficult to explain and the one which best exemplified the difference in thinking between planning a display for amateur operators and planning a display for people who wouldn't know the difference between amateur radio and a hole in their sock! A display which impresses the pants off the cognoscenti is about as meaningful as an election campaign promise to a preacher, lawyer, grader-driver or plumber who wanders in for a bo-peep. Amateur TV is a difficult concept for Joe Citizen to grasp. He is, quite often, incapable of comprehending the plain fact that amateur radio operators design, build and operate stations pushing out normal colour TV transmissions where they can play videotapes, put up computer graphics, show themselves and their shacks on real, common, garden variety TV receivers



Some of the crowd who saw the amateur radio display.
Photo by Wayne VK2XWC

as found in any home. With TV sound yet!

Joe Citizen, it seems, can only think of television as huge media empires and glowing deities on the screen of his idiot machine. This magic, all pervading medium, brings to his/her mind giant media magnates, multi-megabuck empires and, of course, the \$70 million-a-throw Hollywood mind-destroying extravaganza interspersed with brain-bleaching bulldust and vapid, empty-headed "things" parading their dubious charms.

The reality of amateur TV was demonstrated in two ways. Some distance from the building housing exhibits was a car park, reserved for exhibitors, in which the Divisional volunteers parked their limousines. In one such chariot a transmitter supplied by Brian VK2KML (and built by him) along with his 70 centimetre antenna, a video camera and a car battery, were set up. The camera showed a view of the WIA display section of the place, complete with flags and banners, as viewed from afar. The transmission was received full-strength on a normal spiral indoor antenna atop an old 14 inch colour TV set. Signs explained the picture's origin. Next to this set was another 14 inch colour TV, fed from an outdoor antenna on 579 MHz, showing the output of the Sydney ATV repeater VK2RTS; once again, signs explained

to visitors the origin of what they were viewing. John VK2JWT, the display's "front man" to visitors, had the unenviable task of explaining to visitors just what it was they were seeing.

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when a chap around 17 years of age asked just what it was all about. As luck would have it, Peter "the Brat" VK2XZP was up on the ATV repeater using his ATV-converted valve FM transmitter. Peter, being around 16 years old, seemed a logical person to chat with the interested party so the 2-metre rig's microphone was passed to the visitor who then talked with Peter on 2 metres while Peter talked back, sound and picture, on ATV. Peter's signal had come from his home at Berowra to Springwood in the Blue Mountains then to Eastern Creek. The visitor, identified only as John, was given the good drum by "the Brat" and you may hear him on the amateur bands in the not-so-distant future.

A similar situation occurred with the packet BBS. A visitor wandered over to it and spoke to its owner/trainer, Ashley "Trash" VK2XSO about Internet wormholes and similar BBS BS. No doubt, we will soon see another callsign on packet. The VK2XSO BBS was left running continuously over the three days and utilised a 3 element 2 metre beam mounted indoors, pointed through a window-wall at a convenient digipeater, thereby overcoming the problems encountered with 2 metre voice. The other gear was turned off overnight and cables removed so the huge glass doors could be closed and locked each evening.

Taking an overall view of the event and making an assessment of its worth, the opinions of all who participated are that it was certainly worth the effort. No-one was in a position to count heads but it seems as though two thousand or so people, who had never heard of Amateur Radio, now have. Opportunities like Hobbyfest 93 don't grow on trees and it is important to make hay while the sun shines in getting our message out of our shacks and into the general community. Look for the Divisional display at Hobbyfest 94. Also, keep your eye on the main chance yourself if it comes your way and gives your club or organisation the opportunity to "show 'em what we have." The display co-ordinator, Julie Kentwell VK2XBR, warmly thanks those who took part. They are: Setup and dismantle: John Turner



ATV played a key role in the Hobbyfest 93 amateur radio display.
Photo by Wayne VK2XWC

VK2JWT, Aub Topp VK2AXT, Wayne Chadwick VK2XWC, Terry Ryeland VK2UX, Barry McNeil VK2FP, Ashley Anderson VK2XSO, Tony Musson VK2CAM and Dave Reed the bus driver (he is still studying for his licence).

Equipment suppliers: John Turner VK2JWT, Aub Topp VK2AXT, Barry McNeil VK2FP, Ashley Anderson VK2XSO, Paul Jones VK2JPL, Brian Leslie VK2KML, WIA NSW Division.

Display Operators: John Turner VK2JWT, Shannon Bathis VK2JSB, Aub Topp VK2AXT, Wayne Chadwick VK2XWC, Terry Ryeland VK2UX, Barry McNeil VK2FP, Ashley Anderson VK2XSO, John Simon VK2XGJ, Tony Musson VK2CAM, Paul Jones VK2JPL, Jim Walker VK2XJW and Jenny Kentwell (soon VK2PIG).

The Sydney ATV Group repeater VK2RTS was, as mentioned, used as a drawcard and was occupied over almost all the three days by ATV operators who kept it running with videos and on-screen presentation. Thanks to Kerry Adams VK2BXT,

Peter Mudie VK2XZP, Neil Dodds VK2TNE, Barry McNeil VK2FP, Don Cross VK2EYI, Mal Charrington VK2VEU and John O'Shea VK2ATU. Well done chaps, your input was well received (disgusting pun intended) by those who visited our display.

The NSW Division appreciates the efforts of the Sydney ATV Group, not only in equipment supply and repeater input but also for the fact that, of the 15 volunteers who made the show possible, 9 of them were from the SATVG. A great effort by any judgement.

Also demanding a mention is the effort by Alan Whitmore VK2YYJ and his team in setting up and operating their own, independent WICEN display complete with working packet station just across from the NSW Division's display. Needless to say, they found it quite simple connecting to VK2XSO's Packet BBS.

Summing up, it was a good job done well by all involved.

**Publicity Officer WIA NSW Division*

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Product Review

Ham Log — An Australian Log Program

Evan Jarman VK3ANI

While keeping a log may be a requirement of radio operation, for many it is just a chore. Entries are made and never looked at again: the age old concept of file and forget.

This is not the purpose of log keeping. The main function of a log, like any data base, is using the information that is recorded. This is where computers have an advantage. Reading a log book is nearly as boring as reading the phone book: great cast but no plot. The computer can analyse all the entries in a log, sort, collate and display all the entries in a log in a form that is much easier or quicker to interpret. Being in this form one can make quicker decisions. It is a natural advantage of the computer; doing mundane, boring jobs quickly and repeatedly. All part of the computer's function in life; to make life easier and more pleasant for their users.

Ham Log was written to take advantage of the computer's ability to analyse data continuously. It enables the operator to take advantage of past activity to provide information, at the touch of a button, relevant to a correct contact. This can range from an operator's name to working out if a particular station provides that all important multiplier in a contest or would be a useless duplicate entry. It can be the difference between stardom and being an also ran.

Entering contacts into Ham Log is made on a separate screen (that appears when an addition is wanted) requiring name, QTH, RST (both sent and received) and any comments. All other information is automatically provided by the program including the time QSO started and finished. When the callsign is entered, the

country is recovered from a separate data base and displayed after warning you if there has been a previous contact (done by pointing to the log entry). This is done first as it enables callsigns to be entered before working the station just to check for previous contacts. In contests this is invaluable.

"This program contains the features that heavy log users said that they want."

Some information, such as frequency, uses the default of the last used value but can be altered as required. This means that you can never forget a name again. In contest mode multipliers and that essential sequence number are provided. The included text editor (available at the push of a button) is very handy for CW operation. The fact that it creates a separate text file on disc enhances its usefulness as the text can be imported into most word processors if desired.

One feature of Ham Log is that it can keep up to six different logs. Why this would be may seem obscure at first, but it is very useful. Multiple logs allow separate logs to be kept during a contest, event, field day or during a commemorative call sign allocation. It means that the entries in the main log do not interfere during an event

such as a contest. Having worked a station ten years ago should not bring up any alarms in the heat of contest operation. Similarly, a separate log can be kept until all certificates are issued. Each of the six logs is equally accessible and can be merged when the reason for their differentiation is no longer apparent. The usual log maintenance routine such as sorting, renumbering, repairing are all available. Selection is by highlighting the menu item and pressing the enter key or choosing by number as it is with all the other options.

As with any good data base, Ham Log's country listing can be revised as new prefixes are notified. Prefix listings also use time as a parameter. This means that having worked a particular prefix, the contact remains valid even with relocation of the prefix. Also, the correct country for that prefix at that time will always appear.

Ham Log keeps statistics on log contacts such as the number of countries worked versus the mode and frequency. The same statistics are kept for confirmed contact, for quickly determining if the DXCC has been reached. Ham Log will also keep a list of stations for which a QSL has been promised and, if necessary, print the QSL label itself in any of three formats.

The programmer, Robin Gandevia VK2VN, has consulted with some of the larger QSO crunchers of the amateur world to find the options most wanted, and it shows. This program contains the features that heavy log users said that they want. It is light in the frills that make computers a law unto themselves; designed as a working aid, not as a plaything. One frill that would have been nice is the ability to change colours. In daylight the colour screen was not easy to read. A compromise was to use monochrome during the daylight and colour when light levels were lower and a more comfortable screen was wanted.

Ham Log occupies approximately 1.35 MBytes of disc space for the program with additional space for the log data. It is best run on a hard disc. The review copy came on a 3.5 inch 1.44 MBytes disc; it was version 2.41. Ham Log comes with a user's

manual if clarification is needed and has the usual F1 help screens. It requires a minimum of 384 KBytes of memory preferring 640 KBytes. The program is for IBM or compatible computers running MS-DOS 3.3 or later.

Stop Press

Version 2.5 is Here!

A roadtest by Ron Churcher VK7RN.

"Robin", I faxed, "Ham Log is brilliant, I love it, BUT your program doesn't do what I want. I print my QSLs on the back of a colour photo and I need a program that gives me complete control over everything that I print. None of your four automatic programs does this".

"NO WORRIES" says the genius, and up comes version 2.5 of Ham Log.

We now have a QSL "Custom Format" option. I can now select what fields I want to use from the QSO records, in what order, PLUS five text fields and send it to a DOS file. I use "Word for Windows" to set up and store my card format in the PRINT MERGE option, import the data file and print the card. One small problem exists in that the DOS data file does not include the field headers, so I have a small "Headers" file which I clipboard into each data file before printing. Get Me?

Every different word processor would need a different method so it would be impossible to incorporate every "want" into Ham Log.

Text Editor Facility

This has now been extended allowing an unlimited "Notes/Comments" field for every QSO, saved for future use in a DOS file. Great for digital mode use.

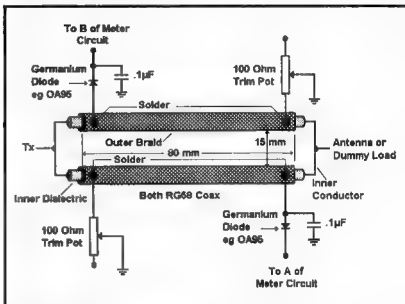
FACTOR

FACTOR mode has now been added in place of the AM mode.

As a final comment I would recommend Ham Log to anyone, especially people like me with a pretty limited computer knowledge.

A Simple SWR Bridge

Godfrey Williams VK5BGW * home brews an effective SWR Bridge.



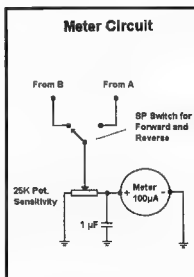
This idea was born from my own dissatisfaction with other designs I have tried, particularly those involving 50 ohm strip lines and toroidal core types.

The two parallel 80 mm lengths of RG58 coax were mounted on to, and the other 15 mm above, a piece of suitably etched PC card; the complete assembly then being mounted into a 120 mm long diecast box. The ends of the bridge are terminated in SO239 connectors, one mounted on each end of the box. Connecting wires for the meter circuit are passed through small holes drilled through the side.

With a 50 ohm load connected, adjust the appropriate trimpot for a null (should be zero at 50 ohms) then swap the transmitter and antenna connections and adjust the other trimpot in the same manner.

Sensitivity at five watts on 40 m was very good, suggesting that the bridge may also function well on 160 and 80 metres.

Meter Circuit



The meter showed good distinction between 1 to 1, 2 to 1 and 3 to 1 SWRs when 50, 100 and 150 ohm loads were applied.

* 31 Karpion Crescent, PARA HILLS WEST SA 5096

Random Radiators

with Ron Cook VK3AFW and Ron Fisher VK3OM

Here we are back again with a variety of antenna ideas which we hope will inspire you to get outside and enjoy our late summer weather and improve your signal.

More on Balcony Antennas

Its amazing how one (or two) ideas start another one. A letter from George Cranby VK3GI to Lloyd Butler VK5BR, and then passed on to us, pointed out that a most interesting advertisement for a compact loop antenna had appeared in the Italian magazine *Radio Rivista*.

When one of the Rons looked at the drawing, he recognised it as an old Japanese TET antenna that was collecting dust in the garage. There is no indication in the Italian advertisement as where the antenna is actually made, but the one here was manufactured in Japan and imported many years ago by the late Dick Roy VK3ADR. We suspect that possibly only one or two were imported at this time.

The antenna covers 40, 20, 15 and 10 metres with the aid of two traps. It seems that it is actually a squashed trap vertical antenna and it requires

some sort of a ground plane to operate successfully. As far as can be seen, it does not operate as a loop antenna. We have tried it out and the performance is quite reasonable. Even sitting inside the shack several interstate contacts were made on 40 metres.

If there is another one like it out there, we would be most interested to hear about it. In the meantime, we might ship it over to Lloyd Butler to get his thoughts on how it actually operates. Like one of the antennas described in the December 1993 *Random Radiators*, this one can be set either in the vertical or horizontal position. As we don't have a suitable balcony our tests were carried out in the vertical position only.

The "Z" Match Again — A Few Problems

A letter from Murray Burford VK5ZQ describes some problems with a "Z" Match tuner he built. I will let Murray put his points first.

"When I moved my operating position inside from the garage I could hardly bring in the monstrosity of an ATU I had been using there. My wife's

tolerance was being strained as it was! I remembered the Rononymous "Z" match in Amateur Radio for March 1990 and having heard of the wonders of the "Z" Match, I built it up as per the instructions and complete with the SWR meter. The device seemed to work fine. When I decided to give 160 m a try I needed to put together another ATU with an earth. Having done this I was left without the SWR meter, so used the transceiver's in-built one for the first time. So far so good!

On returning to the higher HF bands it occurred to me to check the SWR with the transceiver's in-built meter. The later indicated that all was not well and since solid state machines apparently do not like high SWR, I put the "Z" Match to one side and sneaked the disgusting looking ATU from the garage inside. Everything worked fine.

All this caused me to do some thinking and study the circuit of the "Z" Match carefully. I then expressed my thoughts to other amateurs.

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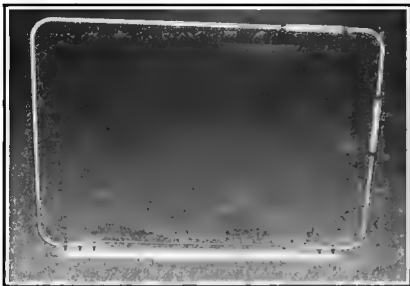
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Fig 1 — The line drawing of the compact loop antenna as advertised in *Radio Rivista*.



A photo of the Japanese TET compact loop antenna.

I could not see how the "Z" Match could possibly tune an aerial system. The name "Z" Match then commanded attention. Impedance matcher, maybe, but an ATU? I was doubtful. No one wants to appear like an idiot and that fact stops many people asking questions, but it's one way of learning and we all start off in the crib knowing nothing!

A couple of weeks ago I heard a Victorian amateur expressing similar views to mine about "Z" Matches and that boosted my confidence. Should "Z" Matches be included under ATUs as so many handbooks seem to do?"

Well, Murray, thanks for your thoughts. It seems you are confused between the operation of an ATU and an impedance matching system. I believe that all so-called ATUs are, in fact, impedance matching devices. Surely the idea is to match whatever impedance appears at the end of the feed line to the 50 ohm input to the transceiver. If you want to "tune" the antenna then there is only one place to do it and that's at the antenna itself.

Perhaps you might like to tell us just how your "study of the 'Z' Match circuit" caused you to have doubts on the ability of it to work. By the way, Murray, did you check the performance of the two SWR meters against some calibrated dummy loads?

Sorry but we still like the "Z" Match.

Steel Wool Baluns, Yes or No?

Thanks to Steve VK5AIM for bringing the steel wool balun to our attention. This was described in the November 1992 issue of QST.

I have to admit that the idea looked good and perhaps a few amateurs have tried it out. We must admit that we haven't. Well, in the September issue of QST, the guru of antenna matching, Walter Maxwell W2DU, pronounced judgement on it. In a word, forget it! Walter carried out several tests and compared it to a

ferrite choke balun. In all cases, the steel wool proved to be almost totally ineffective. See Table 1 for all the details.

VK Windoms — Not So New After All

A letter from Dennis Avard VK4ADY brings to our attention an earlier version of this antenna designed by DJ2KY and featured in the 1978 edition of the RSGB book "Amateur Radio Techniques".

The idea is to use a multi-wire dipole, adding two wires 4.5 m and 2.52 m as shown in the diagram. One interesting point is the use of 60 ohm coaxial cable feeder. Probably 50 ohm could be substituted with very little change in operation. It is also suggested that 300 ohm parallel wire feeder could be used. In this case any length of feeder into a "Z" Match would be the way to go.

Here is a reprint of the article. Five-band VS1AA/Window

Many years ago (QST, September 1929), L Window W6GZ, described the original single-wire-feeder Window aerial. This utilised the fact that when an aerial is resonant, the impedance at any point along its length is a pure resistance — which in practice varies from under 50 ohms to about 5000 ohms. There is thus always some tapping point at which the radiator can be matched to a transmission line — which can take

Table 1

Comparing Steel Wool and Ferrite Beads in the Development of Balun Longitudinal Impedance

Loading Material	F (MHz)	R (ohms)	X (ohms)	Z (ohms)
Coax Alone	4	<0.1	16.5	16.5
Steel Wool		0.5	15.3	15.3
50 #73 Beads*		800	700	1063
Coax Alone	7	0.11	27.4	27.4
Steel Wool		0.95	26.0	26.0
50 #73 Beads		1450	375	1500
Coax Alone	14	<0.1	56.1	56.1
Steel Wool		1.4	54.3	54.3
50 #73 Beads		1240	-325	1282
Coax Alone	21	0.15	88.0	88
Steel Wool		2.45	90.5	90.5
50 #73 Beads		1000	-450	1097

*W2DU HF Balun

RF Bridges: GR-1606A, Boonton 250-A RX Meter

Signal Generator: HP 606A

Receiver: Kenwood TS-530S transceiver

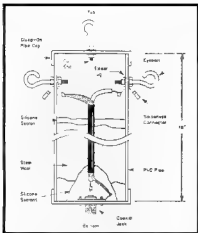


Fig 2 — Curt Wilson's budget 1:1 choke balun using steel wool.

the form of a single wire. In these conditions the wire no longer radiates or has pronounced standing waves on it, but acts as a conventional transmission line.

The original Windom was essentially a one-band aerial and sometimes proved pretty critical to adjust (usually by running a neon along the feeder to see if there were pronounced standing waves). Soon afterwards, G2BI showed that by cutting the feeder carefully so that the whole system provided resonance on a lower frequency band, it was possible to use a Windom quite effectively on, say, 7 and 14 MHz. Then Jim MacIntosh, VS1AA (now GM3IAA), in "Some experimental work with aerials," (*The T & R Bulletin*, November, 1936), introduced an important new idea — the "one-third" tap: "During the course of experiments with a 264 ft Windom, it occurred to the writer that there must be an arithmetical relation between these somewhat mythical tapping points, and after a little juggling with pencil and paper, the fraction one-sixth was evolved" (ie one-sixth from the centre). He added: "This one-sixth business sounds too good to be true, but it at least has the merit — if such it may be termed — of being geometrically correct." And so was born the multi-band VS1AA which is still going strong. By using the one-third tap on a 138 ft wire (and using thinner-gauge wire for the feeder) one still has a very useful four-band aerial for 3.5, 7, 14 and 28 MHz.

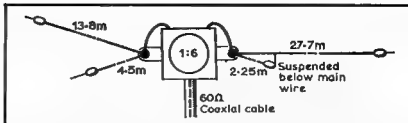


Fig 3 — DJ2KY's five-band Windom. 300 ohm twin line could be used instead of the coaxial cable plus 1:6 balun transformer.

In recent years, the VS1AA has been given a new lease of life in its twin-wire form, using a conventional 300 ohms balanced feeder instead of the slightly more critical single wire. Theoretically the impedance at the one-third tap is of the order of 500 ohms (or rather less, due to the presence of ground, etc) on 3.5, 7, 14 and 28 MHz. Unfortunately, this is not the case on 21 MHz where the point is at high impedance.

One method of coping with 21 MHz is to add two shorted quarter-wave stubs at 76 ft and 38 ft from the feed point — but stubs are never very popular.

An alternative technique is described by F Spillner DJ2KY, in *QRV Amateur Radio*, No 8, August, 1972. He used a 1:6 balun with 60 ohms coaxial cable for the feeder, but 300 ohms or open-wire line, or single wire feeder could be substituted. His basic idea is to make use of the well known multi-wire dipole technique adding two wires, 4.5 m and 2.52 m as shown in Fig 3.

And so for this month, it's goodbye from him and goodbye from me.

The two Rons.

WIA News

Loss of 100 MHz from 13 cm Band

The 2300-2400 MHz segment of our 13 cm band (2300-2450 MHz), a shared band in which the Amateur Service is a secondary service, will shortly be auctioned off according to the SMA's new "price-based frequency allocation" policy.

This 100 MHz of the 13 cm band is allocated for use by Multipoint Distribution Services. It is expected that Pay TV licensees will use it for terrestrial distribution.

John Martin VK3KWA, Chairman of the Federal Technical Advisory Committee (FeTAC), provided WIA Federal with details in his report to the February Federal Council meeting in Melbourne.

"The result is," says John Martin, "that in the near future, as MDS services expand through the

2300-2400 MHz band, amateurs operating on 2304 MHz will have to make a move to 2400 MHz." From John's report, operators of 2304 MHz beacons in Brisbane and Adelaide have already been advised that their beacons could interfere with MDS reception. The Adelaide beacon may be required to cease operation this month or next, according to a letter from Bill Coomans, Acting Manager of the SMA's Technical Services Team, Customer Services Group, from Canberra.

John is preparing a band plan revision proposal which will be circulated shortly. He noted that there had been little protest about this proposed loss of band space (which was advised by the then DoTAC in 1988) Technical details on the primary service MDS channels are in the 1994 Call Book, page 23.

Technical Abstracts

Gil Sones VK3AU

Wide Range Capacitance Bridge

A little known bridge originally described by Clerk Maxwell offers wide range and a linear calibration. The bridge was limited originally by the need for fast mechanical switching. However, modern CMOS switches can overcome this problem.

Dick Biddulph G8DPS describes a practical application in *Radio Communication* for October 1993. The original bridge was described by Maxwell in "Electricity and Magnetism" Clarendon Press, Oxford, 1892. A more recent reference is in a publication "Electrical Measurements" by Golding and Widdis, Pitman, London, 1963.

A conventional bridge uses a high frequency bridge supply as shown in Fig 1. This circuit suffers from non linear calibration as the Capacitor Under Test is given by $CUT = Cs \times R1/R2$.

In the Maxwell bridge shown in Fig 2 the capacitor under test is alternately charged and discharged with the balance condition being zero galvanometer current. The simplified bridge balance equation is:-

$C = (k R1)/(n R2 R3)$ if $(R2 + R3)$ is much greater than $R1$.
 k is a constant for each range
 C is the capacitance in Farads
 $R1 R2 R3$ are resistances in Ohms
 n is the switching frequency in Hertz

For those desiring a full equation it is given in the *Radio Communication* article.

A practical circuit is given in Fig 3 in which the switch can use CMOS switches. These do suffer from a finite on resistance of approx 120 ohms per switch. The detector and oscillator are given in Fig 5 and Fig 6. A variant of this is given in Fig 4 but here a very wide range has been obtained at the cost of a non linear calibration.

Instead of a galvanometer an OP-amp driving a dual colour LED has been used as the bridge detector. This gives a colour change as the bridge goes through the balance point and the LED colour gives an indication which side of balance the bridge is at. This is shown in Fig 5.

The switching waveform generator and the CMOS switch are shown in Fig 6. An Astable multivibrator drives the CMOS switch. Note that the bridge and switching battery supplies are common but that a separate supply is used for the detector so that two batteries are needed.

The complete bridge comprises Fig 3, Fig 5, & Fig 6. Calibration is given in Fig 7 but this is only a guide and some close tolerance capacitors or some sort of standard capacitors should be used for calibration. The parts list is given in Table 1.

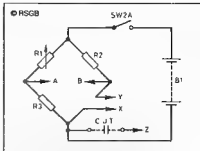


Fig 3 A more practical arrangement with near linear calibration.

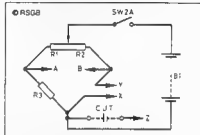


Fig 4 Although this circuit has a wide range calibration needs care.

Table 1

Parts List

The Bridge

- VR1 5K Linear Plastic Track (Cermet if unobtainable)
- R2 20K 1% metal film
- R3 20K 1% metal film
- B1 9V Eveready 216
- Oscillator and Switch
- C1 10nF 1% Polystyrene
- C2 1nF 1% Polystyrene
- C3 100pF 1% Polystyrene
- R5 220K 1% metal film 0.25W
- R6 22K 1% metal film 0.25W
- IC1 CMOS 4068B quad switch
- IC2 CMOS 4047B Mono/Astable

- SW2 DPST switch
- B1 see supply for bridge.
- Detector

#Resistors all 2% 0.25W

- R7,R8 1M5
- R9,R10 10K
- R11,R12 2M7
- R13,R14 620R
- VR2 10K
- C4 100nF
- IC3 CA3140 Op-amp
- D1,D2 Red Green Bicolour LED
- SW2 DPST see Osc and Sw
- B2 Eveready 216

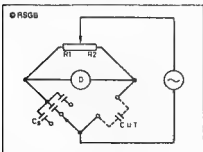


Fig 1 This Capacitance Bridge has the disadvantage of non-linear calibration.

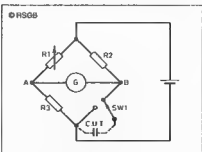


Fig 2 Clerk-Maxwell's Bridge used a galvanometer to determine the balance point.

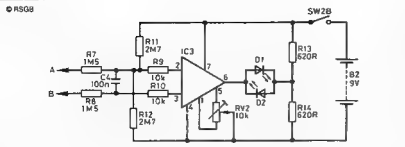


Fig 5 A general purpose op-amp is used in the detector.

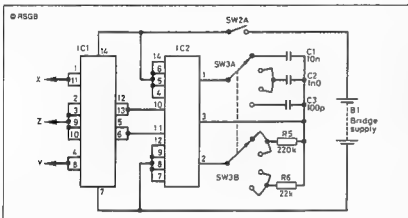


Fig 6 The CMOS astable is connected to an analogue switch as shown.

Printed Circuit Breadboard

One off circuits and experiments are not really suited to printed circuit techniques. Stripboards are not ideal for RF circuits so the use of printed circuit laminate as a ground plane bread board has developed using what has been dubbed ugly construction. The main problem being to make intermediate connection points.

A technique to easily provide insulated connection pads anywhere on a breadboard layout was described in 73 *Amateur Radio Today* December 1993 by Brad Thompson N1JJJ. What Brad did was to glue discs of printed circuit laminate wherever they were required on a printed circuit bread board. The copper upper side of the disc provided an insulated connection point.

The glue used was hot melt glue as used in a hot melt glue gun. A flake of the glue was cut from a glue stick. This flake of glue was placed beneath

the disc of laminate. Tinning the top of the disc with solder melts the glue which then cools sticking the disc in position.

Discs of laminate would seem to be a problem but Brad found that a paper punch punched out neat little discs from the laminate. This will not be too good for the punch so you should use a cheap one. You will get a lot of discs before you need a new punch.

Since you are just punching the laminate you can use all sorts of scrap laminate to make the discs. The insulation of the disc and glue is adequate for low voltage circuits at less than 50 Volts. RF should be OK as the pad and glue is a small area but high power may not be a good idea.

For most small circuits and layouts the technique offers a way to make a neat layout with less reliance on aerial joints. Circuits can also be laid out on a variety of other breadboard materials. Anything that the glue will stick to is a possibility.

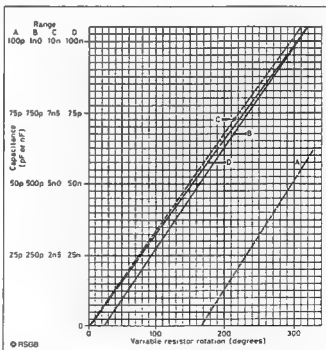
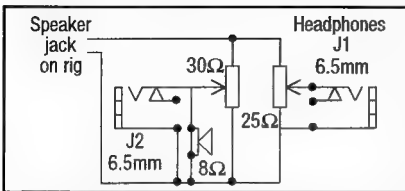


Fig 7 Calibration curve for the configuration of Fig 3.

Speaker/Headphone Control Box

Lindsay Collins VK5GZ* describes a neat accessory for a receiver.



J2 for cassette recorder taping and second extension speaker.

Since 1980 I have operated portable for the WIA at schools, hobby exhibitions, etc. I have always operated my own gear and also put

up my own antennas on a portable 28ft mast. With a twin paddle electronic keyer and my own home-built 2 memory caller, it always

attracted large crowds. In the 1985 Hobbies Exhibition I was in the WW CW contest, with amateurs telling the people what countries I was working every minute or two.

I use an extension speaker in the shack always, so when portable, the speaker volume is controlled from the rig so that the nearby operators on SSB, and other stalls, etc are not drowned out. With my hearing loss and fast CW I like to wear phones which also have a volume control. These plug into the extension speaker, also with its own volume control. At night time in the shack this volume control is turned down low so as not to affect the neighbours. Another jack is wired across the speaker to take a cassette tape recorder or a second speaker. In CW contests it allows me to remove the headphones from my ears for short spells and still be able to copy from the speaker.

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If all this looks Greek to you, perhaps it's because you're not reading the authoritative source — Amateur Radio Action magazine... at your local news outlet every fourth Tuesday.

WIA News

ARRL Seeking Primary Status on 900 MHz

The American Radio Relay League (ARRL) has petitioned the US Federal Communications Commission to provide two primary allocations for US amateurs in the 900 MHz band, with certain geographic limitations, according to the ARRL Letter.

US amateurs are already allocated 902-928 MHz on a shared basis. The band is used by several other services, including radiolocation, fixed and mobile services, industrial-scientific-medical (ISM) equipment and low-powered nonlicensed devices (eg "wireless" computer networking equipment).

The ARRL submitted that since the 902-928 MHz band was made available to US amateurs in most of the US in 1985, its use has grown, particularly for weak signal work and amateur TV.

Use of the 902-903 MHz

segment is "heavy", according to the ARRL, with not only weak signal operation, but point-to-point links and repeater inputs. 912-918 MHz use is also heavy, used for digital wideband TV, ATV simplex and ATV repeater operation.

The WIA's Federal Technical Advisory Committee, headed by John Martin VK3KWA, is developing a submission to be put to the Spectrum Management Agency for an allocation in the 900 MHz band for Australian amateurs.

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of February 1994.

L30877 MR M FRANCIS
L30879 MR B F NORGATE
L30881 MR G KAY
VK2BEL MR R A BELL
VK2FUL MR N KAARSBERG
VK2IAG MR J ELPHICK
VK2JCM MR C J MOORE

VK2TBJ MR B E KIRKNESS
VK2TCU MR J R LAVERY
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VK3DAM MR A D'ALEO
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VK3EWK MR V IRVING
VK3MFI MR K TREGENZA
VK3TLR MR R KEOGH
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VK3TPD MR G PASCOE
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VK4LS MR J G NEWMAN
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WIA FEDERAL 1993 ANNUAL REPORTS

Printed below are the 1993 annual reports received from various office bearers of the Federal WIA. Please note that any recommendations contained in the annual reports are subject to acceptance and adoption by the Federal Council at the 1994 Annual Federal Convention.

FEDERAL PRESIDENT OVERVIEW

The year just completed has been one of some change at the Federal level. The year commenced on a sad note with the untimely death of the Federal President Ron Henderson VK1RH on 26 Apr. 1993, just prior to the 1993 Federal Convention. Over many years Ron had made a significant contribution to amateur radio and the WIA, both at the Divisional, Federal, national and international levels. His loss is sorely felt by us all.

The management structure introduced in 1992 has continued throughout 1993 and has continued its examination of the Articles of Association, a lengthy process which is now nearing completion.

FEDERAL MATTERS

Federal Office

The change at the Federal level was also evident in the Federal Office. Bill Roper resigned early in the year as General Manager and Secretary but agreed to continue until a replacement could be appointed. After some deliberation, the Federal Council decided to split the General Manager/Secretary position into two part time positions: the Federal Secretary and the Office Manager. After advertising and interviewing prospective applicants, Bruce Thorne was appointed as Federal Secretary and Donna Reilly was appointed Office Manager. Neither Bruce nor Donna have an amateur radio background but have been able to take up the reins in the Federal Office and contributed to the financial success of 1993.

The WIA Examination Service has continued to operate smoothly and provides an efficient service to those wishing to undertake examinations for the various amateur certificates of proficiency.

Membership Statistics

Sadly the decline in membership of the last few years has continued with a loss of 2.4% over the year to a year end figure of 8165. This loss is a concern to us all, as it is only through a strong membership that we can continue to provide an effective voice to government and internationally. It is not comfort to know that our sister societies in other countries are experiencing similar problems. Nationwide we see a continuing ageing population trend and must devote attention to the problems of both retaining existing members as well as recruiting new members.

WIA Board of Directors and Federal Council

The Board of Directors, with representatives from each Division, has met each quarter during 1993. In addition a special one day meeting was held in April. Use has also been made of phone and fax as a means of progressing Board deliberation between the regular meetings. Some of the quarterly meetings were also supplemented by meetings of the Federal Council which continues to set policy for the guidance of the Board and the Federal Office. Significant issues during the year have been:

- continuing work on the Articles of Association which is now nearing completion. Some may despair of the seemingly slow progress on this subject but this is an area which requires careful deliberation and debate and not one to be hastened unnecessarily.
- re-staffing of the Federal Office. This has been mentioned above.

- Amateur Radio Magazine. The Board is continuing its examination of AR magazine, including production options to ensure that AR remains viable and can continue to provide us with an effective journal for years to come.

INTERNATIONAL MATTERS

Following the major effort involved with WARC 92, 1993 was very much a period of consolidation. Smaller, more focussed WRCs, to be held about every two years, have now replaced the less frequent, more wide ranging WARC's. For the immediate future, it appears that there will be no requirement for specific amateur representation at WRCs for several years. However, the IARU may well be involved. The WIA is continuing to be involved in ITU and IARU matters on an ongoing basis and will be well prepared when amateur representation is needed at a WRC.

The WIA has started preparation for the next IARU Region III meeting to be held in Singapore in September 1994. More will be reported on that in the near future.

NATIONAL MATTERS

SMA

1993 saw the creation of the new Spectrum Management Agency (SMA) under the Radiocomm Act 1992. This new agency has responsibility for all matters relating to the amateur radio service. Like all new government bodies, its birth was a protracted affair, during which time amateur matters were unfortunately relegated to a low priority situation. As a consequence, the new regulations for the amateur service which were foreshadowed in 1992 have yet to see the light of day and many other matters which were under consideration with DOTS have not progressed.

Recently the SMA has been able to resume its consideration of amateur matters and it is hoped that it will be possible to report progress on many of the outstanding items in the near future.

STANDARDS

WIA involvement in standards is continuing on several fronts. This is probably one of the least known areas of WIA involvement but still very important to the amateur service. We need to be aware of new and emerging standards which are likely to affect our operation as amateur radio operators so that the necessary input can be provided to ensure that our operation is protected, while at the same time ensuring that we can continue to be good citizens and live with our neighbours, both personally and in an RF sense.

THANKS

I wish to record my personal thanks to all who have assisted the WIA over the last 12 months. Particular thanks must go to:

Bruce Thorne, Donna Reilly and the Federal Office staff.

My fellow Board members, Rob Apathy VK1KRA, Roger Harrison VK2ZRH, Bill Macdonell VK3BWD, Rodger Bingham VK4HD, Peter Wardlaw VK5AWM, Neil Penfold VK6NE and Jim Forsyth VK7FJ.

The Editor of Amateur Radio, Bill Rice VK3ABP and his gallant band of volunteers;

Our Federal Coordinators and Officers whose continuing voluntary efforts must not be forgotten;

AMSAT Awards
Contest Manager
Education
EMC
FTAC
Historian
Honorary Legal
Counsel

IARU
Int'l Travel
Host Exchange
Intruder Watch
Media
OSL Manager (VK0, VK3)
Standards
Videotapes
International
Regulatory & RSG
WICEN

Graham Ratcliff
John Kelleher
Peter Nasbit
Brenda Edmonds
Hans Ruckert
John Martin
John Edmonds

George Brzostowski
Kevin Ods

Ash Neilawa
Gordon Loveday
Roger Harrison

Neil Penfold
Roger Harrison
Bob Godfrey

David Wardlaw
Leigh Baker

Kevin Ods VK1OK
Federal President

ALARA

The Australian Ladies' Amateur Radio Association has had a successful year with membership holding about the same number.

Our Contest had reasonable conditions and the number of Logs received was about average.

Publicity has been improved through the production of an information leaflet detailing the background of ALARA and opportunities to become involved with amateur radio, and ALARA in particular.

ALARA was represented with a display at the Moorabbin Club, FAMPARC and Wagga Wagga conventions. As well our Editor gave a talk on ALARA to the Manly Warringah Radio Club. Lunches continue to be held in various states for a member or interested person to meet with other YLs.

The ALARAMEET held at Castlemaine VK3 in October 1993 was very successful with 80 people in attendance, including a number from New Zealand, and from most VK call areas. The next ALARAMEET will be held in VK6 in 1995 and the Western Australia YLs are planning already.

Changes to the Committee have been Margaret VK4AOE as Treasurer/Souvenir Custodian and late in the year Bev VK6DE took over from Poppy VK6VF as VK6 State Representative.

Bron Brown VK3DYF

AMSAT AUSTRALIA

The number of Amateur Satellite operators has once again steadily increased during 1993 particularly in the area of the 9600 baud Packet Radio satellites and to a lesser extent the 1200 baud PACSATs. There has also been a steady trickle of newcomers to Amateur Satellites who are more interested in using Amateur Satellite for CW or voice communications and have found great satisfaction in using the Russian Low Earth Orbit Satellites like RS-10/11 and RS-12/13, AMSAT-OSCAR-21(RS-14) with its Digital Signal Process (DSP) FM repeater and the highly elliptical orbit AMSAT-OSCAR-10 and AMSAT-OSCAR-13.

Maggie Inquarto VK3CFI continues to be a focal point for voice and packet radio contacts with the Soviet space station MIR. This has meant that many Australian Amateurs have continued to have the opportunity to communicate with the Russian Cosmonauts onboard MIR on both voice and Packet Radio. In November/December 1992, Russian Cosmonaut, Musa Manarov, U2MIR visited

Melbourne and Maggie had the well-deserved opportunity to speak to Muse face to face having kept him company (via Amateur Radio) on many occasions while he was onboard the Russian Space Station, MIR. As Steve VK3CAK's year 12 physics students had regular exchanges with Aleksandr, the "Orbiting Professor" onboard MIR. Similarly, Rob Chapman's year 12 physics class at St Columba's college in Essendon.

In 1993 Australian schools were once again given the opportunity to talk to the astronauts aboard the Space Shuttle which carried the SAREX (Shuttle Amateur Radio Experiment) Australian schools are again invited to send a SAREX to AMSAT-Australia via GPO Box 2141, Adelaide SA 5001 if they would like to have SAREX contact astronaut onboard future Shuttle SAREX missions carrying amateur radio. Such contacts can be either direct on 2 m or via a phone link to my CTH.

In 1993, no representative attended any of the Phase IID Experimenters' Meeting in Marburg, Germany representing Australia. However, I do plan to attend the 1995 Phase IID Command Station Seminar as an invited participant. Phase IID is currently due to be launched in mid-1996.

During 1993 another 5 Amateur Radio Satellites were successfully launched. ARSENE, a French Amateur Radio Satellite was successfully launched on 12 May 1993. Unfortunately, its Mode-B transponder failed not long after launch and then not long after its Mode-S transponder also failed. This was particularly disappointing as ARSENE's orbit would have provided some very interesting radio communication capabilities with its on-orbit equalizer. On 26 September 1993, PoSAT-1, KITSAT-OSCAR-25, ITAMSAT-OSCAR-26 and AMSAT-OSCAR-27 were successfully launched by the European Space Agency onboard an Ariane launcher. These 4 satellites have added to the already existing fleet of digital store and forward Amateur Radio Satellites. With the exception of IO-26, which is a stand-alone Amateur Radio Satellite, these are not really Amateur Radio Satellites but rather commercial satellites carrying Amateur Radio packages onboard. This approach with the UoSAT and Russian RS series of satellites has proved to be a very 'profitable' arrangement enabling many more Amateur Radio Satellite packages to be added to the Amateur Satellite service.

During 1993, AMSAT-OSCAR-13's apogee has continued to progress towards the equator providing much more access to the Southern Hemisphere stations. During 1994, AMSAT-OSCAR-13 will provide the widest international coverage at any one time of any Amateur Satellite with the exception of AMSAT-OSCAR-10 which still provides excellent communication even though the onboard computer failed in 1988. The improvement of conditions on AMSAT-OSCAR-13 has a so-called marked increase in the number of users. In particular, due to the failure of the Mode-L (1.2 GHz uplink - 70 cm downlink) 70 cm transmitter, there has been an upsurge in users of the experimental Mode-S (70 cm uplink - 2.4 GHz downlink).

Throughout 1993 Bill Magnusson VK3JH has again continued to keep the readers of *Amateur Radio* up to date with the timely material he has provided in his AMSAT-Australia column. Bill's effort continues to generate a steady trickle of interest in the Amateur Satellite Service. In 1993 I received over 800 mail items requesting general information on Amateur Satellites and satellite tracking software. Also, the AMSAT-Australia monthly NEWSLETTER has increased its total number of subscribers (started in April of 1985) from 795 to 844 in 1993.

Finally, I would like to thank the WIA for its continued support of the Amateur Satellite Service via the activities of AMSAT-Australia and ask that the 1993 Federal Convention recommend that the WIA continue to support AMSAT-Australia financially at the present level.

Graham Ratcliff

AMSAT-Australia National Coordinator

AWARDS

In 1993, the "streamlining" of the Federal Awards Programme continued successfully with a computerised data base for DXCC after total reconstruction of all active files. This led to the bi-annual publication of accurate DXCC listings.

These listings have been further enhanced by the introduction of the WIA DXCC Honour Roll, and the supply of Honour Roll stickers for existing certificates. Certificates for the Century Club Award have been re-designed and upgraded, along with the printing and issue of certificates for the Antarctic and Grid Square Awards. Also, DXCC application forms have been printed, and are readily available.

These achievements have led to a quick turnaround to the processing of initial applications and upgrades, and the issue of certificates. Consequently, this has encouraged greater confidence and rapport with members.

To maintain this rapport, I do have some suggestions. Please always attach your call sign, and list your application alphabetically in DXCC call sign order (this helps greatly when your list exceeds 150 entries). Please indicate all the details outlined in the WIA Awards programme. To keep my files as neat and accurate as possible, also please advise of any changes in your call sign and your address.

The good points outweigh any problem areas. To summarise, extra-ordinary mobility has been achieved through some hard work, and your co-operation, along with the usual outstanding contribution by the Federal Office staff. To further reinforce this positive situation, I am open to helpful and constructive criticisms from the Amateur fraternity.

John Kellisher VK3DP

Federal Awards Manager

CONTESTS

The past year has been a period of relative stability for WIA contests, and I would sincerely like to thank the following WIA contest managers for their valued contributions.

John Martin VK3KWA Ross Hull & VHF/UHF

Field Day

Phil Raynor VK1PJ John Moyle Field Day

Northern Corridor

Radio Group

(VKBANC) & VK3NE RD Contest

Ray Milliken VK2SRM VK Novice

Discussions have continued with the above managers regarding possible improvements to our various contests, and some good ideas have been put forward. These mainly relate to the method of determining the winning division in the RD Contest, and also an interesting new scoring system proposed for the Ross Hull Contest by John Martin VK3KWA.

I have also been working with NZART's Contest Manager, John Little ZL1AAS, in order to improve the liaison between our two societies. I am pleased to report that the liaison is now quite good, and John and I regularly exchange contest information of mutual interest to both societies, for publication in *Break In* and *Amateur Radio*. For me this means sending to him the rules of WIA contests in which ZLs are welcome to participate (at present this means all WIA contests), and sending the results of those in which one or more ZLs have submitted logs.

During 1993 the management of the VKZL/Oceania DX Contest fell to me, and in an effort to increase the number of countries active in the contest, rules were sent to considerably more amateur societies than is usual. Despite this extra publicity, most logs have remained confined to Japan, Europe, CIS, and Indonesia. Only a couple came from the Pacific and South America, and none from Africa. In fairness, many DX operators took the event very seriously, including a TF3 who faxed his log from Iceland, and an OH who went to the trouble of mounting a DXpedition to Aaland Island.

However, the days of abundant rare DX seem to be gone, which means that newer VK and ZL contestants are less likely to participate in order to

increase their country total. From comments in a number of overseas logs it appears that insufficient participation by VKs and ZLs is largely to blame for, as one entrant said, "we don't support our own contest, how can we expect overseas operators to?"

Apart from increased local participation, I believe more participation from Pacific countries would also help enormously. One thing worth considering is to obtain approval to use commemorative pre-fixes for the contest, which seems particularly appropriate for a pre-fix based event. I will shortly be discussing these and other ideas with John Little ZL1AAS who is managing the 1994 event. A more detailed report on the contest will appear with the results in a month or so.

The world of contests is changing rapidly. Relevant factors include changing leisure patterns, reduced disposable income for many, the difficulty of getting antennas permits in city areas, the increasing use of computers in contests, and a slow but steady evolution in the sorts of things which appeal to us as worthwhile activities. As contest administrators we need to identify exactly what makes people enter our contests, and fine tune the rules where necessary to increase their appeal. Over the next 12 months I will continue to work with the contest managers to see what can be done, and restore a healthy and energetic approach to contests by VK amateurs.

Peter Nesbitt VK3APN

Federal Contest Coordinator

EDUCATION

The main achievement of 1993 has been that work has been proceeding on the theory examination question banks.

With very considerable assistance from a small number of volunteers, both banks have been reviewed. A few badly worded and duplicated questions have been deleted and a number have been reworded for improved clarity. The next step is to add new questions to extend the number of questions in each bank. At the end of 1993, the AOCP bank was to the stage of having the balance adjusted to ensure equal attention to all sub-sections. This bank has not been reached for the AOCP bank yet.

The intention is to build each theory bank to 1,000 questions, distributed according to the formula used for the exam national papers, with the contents of each section spread as evenly as possible over the various sub-sections.

It may be necessary to postpone work on the NAOCP bank to work intensively on the Regulations bank when the new RIS 71 is finally released.

It is not intended that there be any change to the present system of producing examination papers until all banks are complete.

Recommendations

- 1 that each bank be published when complete;
- 2 that the two theory banks be published separately as ready;
- 3 that the publishing be in hard copy only;
- 4 that the questions in the banks be considered as "type questions" only, reserving the right for, eg, figures in calculation questions to be changed when a paper is produced, or a question to be asked in reverse form.

When sections are considered nearly complete, the final draft will be circulated to Divisional Education Officers for their information and comment.

It is a continual disappointment that so little input is received from the Divisions. Despite numerous requests, I do not have names of Divisional Education Officers. At this stage of the work, particularly, it would be useful to be able to communicate with those who are more in direct contact with the education field and the candidates than I am.

Brenda M Edmonds, VK3KT,
WIA Federal Education Co-ordinator

ELECTRO MAGNETIC COMPATABILITY (EMC)

The following reports were prepared and published in *Amateur Radio*.

- 1) January 1993 ("QST" & "CQ-DL") information. 2 parts on low-pass and high-pass filters, construction and properties.
- 2) February 1993 ("QST" & "CQ-DL") information. also contributions by Norm Burton ("Radio-Communication"), ("CQ-DL").
- 3) March 1993 ("QST" & "CQ-DL") information. also contributions by Norm Burton ("Radio-Communication") and by VK4QE
- 4) July 1993 ("QST" & "CQ-DL") information. also contributions by Norm Burton ("Radio-Communication") and VK3JKJ "EMC-Magazine" USA
- 5) December 1993 also contributions by Norm Burton ("Radio-Communication") and by VK4QE
- 6) January 1994 also contributions by Norm Burton ("Radio-Communication") and VK3JKJ "EMC-Magazine" USA

Each report listed a wide range of EMC problems experienced worldwide and the solutions. We will have to watch out for Cable-TV problems, and the spectrum requests by other frequency spectrum users. On a personal note I informed Federal Council of my wish to retire after 10 years as EMC Coordinator I will soon have my 80th birthday.

Hans Rueland VK2ADU

EXAM SERVICE

We are continuing with the good work by the WIA Exam Service prior to my time, and the people involved, including the continuing work on the theory question bank which is almost complete, to be followed by revision of the Regulations (after the new legislation).

The statistics for 1993 were:

Accredited Examiners registered at 31st December	582
No of Examination Events conducted during 1993	833
No of Candidates who sat for exams	2345
Average Exam Pass Rate	57.81%
Average candidates sitting at each event	3.70
Average exam subjects sat at each event	5.77

The costing of the exams remains the same as the aim was to supply a service to amateurs.

As a result of the SMA Exam Audit, the WIA and the SMA will be revisiting the original Agreement and no doubt Accredited Examiners and candidates will see some changes in the near future. The Audit reviewed the overall level of controls and has assessed them as satisfactory in regard to administration of the system in accordance with statutory requirements. However, the audit found that the original Agreement should be terminated and re-terminated. Various queries by the audit of deficiencies in the Agreement lend support to management revisiting the terms in the original Agreement.

There is still one investigation of exam irregularities being pursued by the SMA. However, to date no report has been forthcoming. The WIA Exam Service continues to scrutinise all exams for any anomalies.

Donna Reilly

FEDERAL TECHNICAL ADVISORY COMMITTEE (FTAC)

Membership

The loss of Ron Henderson VK1RH deprived FTAC of its HF Band Planning adviser, and a replacement has not yet been found. Otherwise, the membership of the technical panel is unchanged. Bill Sebbens VK4XZ has left the liaison panel and I would like to thank him for doing a very thorough and helpful job.

Neville Mills VK4KOP is now the Queensland member. Tim Mills VK2ZTM has left the liaison panel after some years and I would like to thank him for his helpful advice.

Activities and Achievements

Much of the activity in the past year has been "routine" matters of record claims, beacon and repeater allocations, and updating the Data Base. Other activities have included technical papers on MDS and a draft submission for an LF amateur band.

Work has continued on a series of band plan revision proposals, and the drafts are now close to completion.

Problems

It has become clear that many amateurs, especially on the VHF and UHF bands, are not aware of the band plans. The plans are published in the Call Book each year but the publicity needs to be better.

Several beacons have come back on the air, but the beacon network is still inadequate and is suffering increasing interference from FM stations. Many VHF operators value beacons very highly but do not use repeaters. An improved beacon network would give these people a more tangible reason to support the WIA.

The Amateur Service will shortly lose access to 100 MHz of spectrum space to MDS services. This probably could not have been prevented, but it is disappointing that the WIA has not taken any action. I believe that the SMA's new "price-based" allocation policy poses a serious threat to all shared amateur bands above 420 MHz.

The WIA must take a more alert and active approach to the problem of protecting these bands.

Recommendations

1. That the WIA explore new ways of making Australian amateurs more aware of the national band plans.
2. That Divisions give further attention to improving the national VHF beacon network.
3. That the WIA develop plans and policies to protect all shared amateur bands from future threats. Specifically, that the WIA seek to obtain exclusive or permitted status for amateurs in a portion of each shared band from 420 MHz to 10.5 GHz.

John Martin VK3KWA
Chairman, FTAC

IARU Liaison

On the IARU front, 1993 has generally been a quiet year between the hectic times created by WARC 1992 and the preparations which have commenced for the IARU Region III meeting in Singapore in September 1994. Major areas of activity have been in the areas of the Promotion of Amateur Radio in Developing Countries (PARDC), the IARU Region III Amateur Radio Direction Finding (ARDF) Competition and the biennial visit to NZART.

The PARDC committee has been active during the year surveying the requirements in several societies within Region III. As a consequence of this, a request has recently been received from the committee through the IARU Region III secretariat for educational and other material to assist the development of amateur radio in those countries.

The inaugural IARU Region III ARDF competition was held during October 1993 in Beijing in the Peoples Republic of China. The WIA was well represented by Wally Watkins, VK4DO and Frank Sleep, VK4CAU. Wally submitted an article which appeared in the March 1994 issue of *Amateur Radio* so that we can all learn more about this new sport. Wally is also intending to attend the Region I meeting during 1994.

June 1993 was the occasion of the 1993 NZART convention and the WIA biennial visit to their convention. NZART will next visit the WIA at its 1994 Annual Convention. The WIA was represented by Kevin Olde VK1OK and Neil Penfold VK6RE at the conference held at Pukakohe on the North Island, near Auckland. The visit was an ideal opportunity to exchange views on training, examinations, Region

III matters and technical matters. NZART is organised very differently to the WIA yet it is surprising how many problems are shared by the two organisations.

Work has already commenced in preparation for the Region III meeting in September, 1994. This will be another opportunity to exchange views with our sister societies in the region as well as continue to provide through Region III and the IARU an effective amateur voice internationally.

Recommendation

The ability of the WIA to represent the Australian amateur community internationally has been facilitated through the International Representation Levy component of the WIA subscriptions. In order that we can continue to provide an effective international voice, I recommend that the International Representation Levy component of the WIA subscriptions be maintained.

Kevin Olde VK1OK
IARU Liaison Officer

INTERNATIONAL AMATEUR RADIO UNION MONITORING SERVICE (IARUMS) — INTRUDER WATCH

We in VK have not been responsible for direct removal of intruders, but our reports have been useful in this field. The weather station on 10.012 MHz, "LRB80", which is no longer with us, is one which comes to mind. Quite a few have positive IDs which are being looked into at present.

The high point has been the flow of information to and from Rohan ZL1CVK, Region 3 co-ordinator, much boosted by the liaison with the SMA monitoring station in Hobart. Very valuable advice has been given to improve the observation process at base level. Some of these may seem to be not feasible at first glance, but I am prepared to try a few out on a trial basis. A database is being investigated as a possible means of shortening the turn around time, and increase evaluating 1 me in Hobart. My thanks to Dave Thorne VK7MAR.

In VK4 we have three new observers, one new observer in VK2 and VK7 but none in VK3. My thanks to those participating. The IW net only operates in VK4, conducted by Tom VK4BTW on Fridays at 0700z on 3.578 MHz. I have a stand on QSO with Graham VK6RO at weekends to keep the west up to date. VK5 and VK7 are covered by mail and packet.

The low point is that there are not enough observers to cover all areas of Australia. We need co-ordinators in VK2, 3 and 8, but I am at a loss to know the secret of attracting them. I'm sure they must never listen to their receivers, or maybe do not spin the dial anymore.

Recommendations

All amateurs should make an effort to back the Monitoring Service in some way. A minimum of 2 hours a week is all that is required and would be a massive step. No one can tell me that is impossible. It is just too easy to let someone else save your pet band. Do not forget all us "oldies" will soon be leaving what is left of the bands in your hands.

Summary

Worst offenders this year have been UMS Group — all frequencies — 800 loggings; VVH & PTA — several frequencies — 293 loggings; UHF3 — 125 loggings. Beacons accounted for 322 loggings and Radio Taipei 21 on 14210 gave us 240 loggings. All these from across Australia, so don't kid yourself, they are around.

Problems

Apart from the lack of support in some quarters, there are too many "wet blankets". The CB operations on all bands now to 29.450 MHz, mainly

from our northern neighbours, with no positive response from their Administration, makes life not so pleasant. I have invested in a fax machine, for our business mainly, but can see it being used to get the logs away quicker to those requiring them, and my notes into Amateur Radio when I receive directives from Region 3 as STOP PRESS. A month IS TOO LONG in this game. 2 months. forget it.

Gordon Loveday VK4KAL
Federal Intruder Watch Coordinator

INTERNATIONAL TRAVEL HOST EXCHANGE

The International Travel Host Exchange (ITHE) is a voluntary scheme administered by the American Radio Relay League (ARRL) wherein interested radio amateurs are able to meet or host fellow operators from other countries. Your name does not have to be on the list for you to take advantage of such hospitality, and you can do so when travelling around our own country. This is another free service from your Institute. If you wish to join the ITHE scheme, please send a SASE to the Federal Coordinator for an application form.

Several Australian ITHE participants have reported meetings with visitors but this office received no direct enquiries this year.

The total Australian membership has dropped to 21, but continued publicity at suitable intervals should improve the situation. All ITHE members are requested to write to the Coordinator when their contact details change.

Ash Malinsville, VK3CIT
PO Box 539,
Werrisbee, VIC 3630

FEDERAL OFFICE MANAGER

I have been in office for only 5 months of the 1993 year, and therefore can only report on this experience.

By far the most significant fact is a positive working relationship with the SBA as this is a most important role of the Federal Office. Although we have had only one actual meeting with the Department there is interaction between our officers regularly. The Federal Secretary will be reporting on progress made in this area on a regular basis.

Some features of those five months:-

1. The Apparatus Licence System Submission and the new Regulations are continuing.
2. The Memorandum of Agreement with the Department for examinations is being revisited.
3. Membership in general remains a little below budget i.e. 6334 in 1992 Vs 6185 in 1993.
4. The professional and reliable status of the magazine is being maintained by Bill Roper as Production Editor.
5. An active recruitment programme by the Federal Office continues to attract new members. Of 1190 packages sent out from the Federal Office (1 10 92 to 30 9 93) 158 amateurs joined the WIA, a 13% success rate.

Donna Reilly

PUBLICATIONS COMMITTEE

The calendar year of 1993 has been rather full of change and rumours of change as regards the publishing of Amateur Radio.

The minutes of the Committee meetings each month first show evidence of this in March, when Bruce Bathols VK3UV, who had been Production Manager since September 1992, gave three months warning that his intention to resign. There were rumours that the Board was unhappy about the content and format of the magazine, and changes were to be expected.

In April, Bill Roper (then VK3ARZ, now VK3BR) resigned as General Manager, but this was completely overshadowed by the tragic death of the

Federal President, Ron Henderson VK1RH on the 26th, after a brief battle with liver cancer. Among Ron's last wishes was that the Committee and the magazine should continue with "business as usual", but he envisaged changes "around us".

Responding to some of the criticism about the appearance of Amateur Radio, March was the last issue to use a photograph occupying the full front cover, and April displayed the "new look", which has the great advantage of permitting either vertical or horizontal format photos to be used, or a montage of several. As Publisher, Bill Roper introduced other changes to style and layout from April on, in conjunction with Bruce, whose resignation took effect in June.

In July, Bill took over as acting Production Editor as well as accepting responsibility for keyboard input of material not already supplied on disk by contributors. As described in the 1992 report (April 93, p. 49) all material now goes to the typesetters/printers on disk, greatly improving efficiency and reducing costs. The more contributions that are received on disk the more fully those benefits are felt.

Bruce Thorne, the newly appointed Federal Secretary, and therefore the new publisher of Amateur Radio, attended his first Publications Committee meeting in August. The Committee was perturbed to find that publication of the 1994 Call Book was behind schedule, and that the Board's plans for the future were unclear. To provide greater committee awareness of the Board's intentions Board member Peter Maclellan VK3BWD spoke at length to the Committee in September, and was able to clarify several points.

In October, Bill Roper was appointed to the position of Production Editor until the end of 1994. He was also contracted to produce the 1994 and 1995 Call Books. The 1994 Call Book was released late in October.

During October the Board established a sub-committee to consider long-term publishing options. Roger Harrison VK2ZTB, as a member of this committee, spoke to the November meeting of the Publications Committee and a good deal of information was exchanged. The sub-committee was to report early in 1994.

Finally, in late December, the year's financial performance figures became available. Advertising income budgeted to be \$45,000 was actually \$47,380. Expenses were higher than budget at \$204,000, requiring \$154,000 from members' subscriptions to make up the difference, but the cost per copy mailed to members was only \$2.24 vs \$2.42 in 1992. Expenses in 1992 were \$225,000 so \$204,000 is a great improvement.

Apart from the names mentioned in this report, there have been no changes since last year in the persons who comprise the Publications Committee or publishing staff (see April 1992, p. 23).

I do wish most sincerely to thank all who have participated in the production of Amateur Radio, and equally sincerely hope that we may do as well or as better in 1994.

Bill Rice VK3ABP, Editor

STANDARDS

Principal activities over 1993 have been in monitoring the activities of Standards Australia. Probably the most significant Standards activity to report is the establishment of four radiocommunication consultative committees by Standards Australia in mid-1993. These committees have been dubbed RC1, RC2, RC3 and RC4.

General radiocommunications equipment standards will be looked at by the RC1 committee; RC2 will look at standards in the field of satellite and telecommunications networks; RC3 will cover low power radiocommunications equipment, and RC4 will cover maritime and safety of life equipment.

These committees will be making recommendations on the legislative application of the standards they prepare.

Type approval of amateur equipment has been an

issue of concern to the Australian amateur community. Fortunately the issue has now been laid to rest.

Amateur equipment is to be exempt from type approval under the new standards and comply with the framework of the Radiocommunications Act 1992, according to an April 1993 letter from Roger Smith, First Assistant Secretary of the then DOTC's Radiocommunication Division.

In his letter, Roger Smith said, "This exclusion has been made because of the experimental nature of the activity pursued by radio amateurs."

"It is also consistent with the approach taken in other countries, such as Europe."

"We will request that Standards Australia make generic standards covering all radiocommunications equipment."

"These generic standards will be based on international standards (where they exist)."

"Amateur radio equipment would be required to conform to the requirements of mandatory generic standards."

The WIA has been invited to participate in the relevant Standards Australia committee to ensure to represent the needs of Amateur users.

Later in the year, Standards Australia publicised the fact that powerline interference limits were being scrutinised in a revision of the Australian Standard prescribing the limits of electromagnetic interference (EMI) from overhead transmission lines.

This standard provides protection for radiocommunications services against powerline EMI.

The scope of the revision to AS 2344-1980 will change, the frequency coverage being lowered from an upper limit of 1000 MHz, down to 30 MHz. A separate standard will now cover the 30-1000 MHz range, according to Standards Australia.

Another change involves cross-referencing the methods of interference measurements.

Standards Australia's intention is to publish this revision as a joint Australian/New Zealand standard. Its release will complete the publication of all EMI standards in this area as joint standards, according to Standards Australia.

Meanwhile action on EMI standards for electrical and electronic equipment in Europe will likely have an impact in Australia.

The European Electrotechnical Commission (EEC) has set a date of 1st January 1996 for stringent new maximum emission requirements to apply to electromagnetic interference (EMI) from electrical and electronic products manufactured or sold in Europe.

Here Standards Australia had made no decision as of June on the question of EMI requirements for such products and the federal government's Department of Industry Technology and Regional Development (DITRD) had not formulated a position at the time. No further advice on this subject was noted from Standards Australia by the end of the year.

The Australian Electrical and Electronic Manufacturers Association (AEEMA) was pressing Standards Australia to adopt a similar date so that Australia would not become a "dumping ground" for products that no longer met European requirements then.

AEEMA's Board believes that Australia should adopt the same date for EMI compliance for electrical and electronic products manufactured or sold here — that is, 1 January 1996. They are to take up the matter with DITRD and other relevant government departments.

Following a kind of after late last year, Dr Vence McKenna VK3ADY has been appointed to represent the WIA on the Standards Australia TET Committee on Non-ionising Radiation. This committee mostly conducts meetings in Melbourne and Dr McKenna is on the spot. He has both medical and radio knowledge so he can competently represent the Institute and amateurs. Interests on that committee

Roger Harrison VK2ZTB
Federal Standards Coordinator

ALARA

Robyn Gladwin VK3ENX*

Apology

In last month's column, I omitted to include the solution to the puzzle which appeared in the February edition. Here are the answers to the Word Chain: 1 wire 2. aerial 3. tuner 4. switch 5. back 6. light 7. beam 8. antenna 9. rotator 10. motor 11. car 12. garage 13. door 14. key 15. hole 16. proof 17. reading 18. glasses 19. case 20. book 21. cover 22. sheet 23. copper

Thelma Souper Memorial Contest 1994

This annual contest, held by the Women's Amateur Radio Organisation of New Zealand (WARO) will be held on Saturday, 9 April and Sunday, 10 April, from 0700 — 1000 UTC each evening.

1. All contacts to be on 80 m.
2. YLs contact YLs and OMs. OMs contact YLs only.
3. One contact with each station permitted in each half hour period.
4. Call CQ WARO CONTEST, exchange report, serial number commencing with 001, and name.
5. To qualify as a multiplier, WARO MEMBER stations must have contact with at least 20 different stations.
6. A bonus station using the WARO callsign, ZL2YL, will be in operation for random periods and will count as a multiplier once on each night of the contest, if worked.
7. All radio regulations must be observed.

To qualify:

- a. Enter date at beginning of each evening.
- b. Each log entry must contain: Time of contact, callsign of station worked, cipher sent, cipher received and name of operator contacted

Scoring:

1. Score one point for each contact, multiplied by the number of WARO members and bonus station if worked
2. Logs to have each contact claimed as a multiplier underlined.
3. Include a separate summary sheet showing:
 - a. Your callsign, name and address.
 - b. The number of contacts.
 - c. The number of WARO members worked.
 - d. Your score
 - e. Declaration that all radio regulations have been observed. Logs which do not comply with all the above requirements will be disqualified.

Logs:

To reach the contest manager, Chris Armstrong, ZL1BQW, PO Box 209, Kaweraun 3083 BOP New Zealand, no later than 6 May.

If conditions are good, this contest can be great fun. As it takes up only three hours on each evening, and each station can be worked again every half hour, it is

the perfect contest for busy amateurs and those new to contesting. As many ALARA members are also WARO members, VK contacts are a welcome addition to ZL scores. Good luck!

People in Radio

Two amateurs who really enjoy their hobby are ALARA member, Bev Clayton VK4NBC, and her OM Graeme VK4BGC. They are pictured wearing their crocodile hats beside their crocodile-decorated car. Yes, you have guessed it. BGC stands for Big Green Crocodile!

*PO Box 438 Chelsea 3196



QSP News

Amateur Radio Licensing in China

Wally Watkins VK4DO advises that changes are being made to the licensing system in China to enable amateur radio operation from home.

The starting grade is SWL at a fee of 25 yuan per year. After one year, and being able to provide 20 QSL cards from amateurs, they can then progress to the next step, a BG callsign. This gives them all bands except 14 MHz with a power limit of 10 watts.

After another year and a further examination it is possible to upgrade to a BD callsign. This

allows all bands and a power level of 100 watts. A further two years and another examination leads to a BA callsign which allows all bands and 1000 watts level.

These changes are being put in place in 1994. However, there are a few BA callsigns already, mainly oldtimers who held calls before 1 October 1949.

One such oldtimer is Tom BA4AC who has a son working at the ANU in Canberra. He spent 12 months recently in Canberra visiting his son and held the call VK1CWM. He now operates from Shanghai with an excellent signal from a TS520 and a dipole.

DICK SMITH ELECTRONICS



Don't Go Without A Yaesu Mobile Transceiver!

Whether you're going bush or broadcasting around town, a quality mobile transceiver from Yaesu delivers the best performance.

FT-2400H Rugged 2m Transceiver

The ultimate in dependability and reliability! The FT-2400H is built using commercial grade mechanical and electronic construction techniques and meets the tough USA MIL-STD-810C shock and vibration requirements, so you know you're getting the highest quality. A one-piece die-cast chassis/heatsink allows three-step output of up to 50 watts without forced air cooling. Plus, fibreglass circuit boards and chip components provide professional-grade reliability. It has a large backlit LCD screen, backlit knobs and 31 tuneable memories (which can store frequency and a four-character name of your choice). A customised microprocessor also provides Auto Repeater Shift to suit Australian conditions. Two-stage track-tuning and a dual FET mixer improve receiver intermod performance. Scanning functions include programmable scan limits, selectable scan resume modes, memory skip, and priority monitoring. Seven selectable channel-steps and CTCSS encode are standard features. Comes complete with MH-26 hand mic, mobile mounting bracket and DC power lead.

Specifications

General
Frequency range: Transmit 144-148 MHz
Receive 140-174MHz
Channel steps: 5, 10, 12.5, 15, 20, 25 & 50kHz
Current Consumption: Receive 400mA
Transmit: 12 Amp (Hi power)
Dimensions: 160 x 50 x 160mm (w/o knobs)

Receiver
Intermediate Freq: 21.4MHz & 455kHz
Image Rejection: Better than 70dB
Maximum AF Output: 2.0 watts into 8 ohms @ 10% THD

Transmitter

Cat D-3830

\$699
2 year warranty

FT-5200 2m/70cm Mobile

The Yaesu FT-5200 carries the latest innovations in cross-band full-duplex and detachable front-panel design for brilliant mobile performance. It has 32 tuneable memories, a built-in antenna duplexer, dual full-frequency LCD screen, 8-level automatic display/button lighting dimmer and dual external speaker jacks. A thermally-activated fan allows up to 50 watts output on the 2m band and 35 watts on the 70cm band, whilst keeping the transceiver very compact yet fully featured. Other features include:

Programmable scan limits, selectable scan resume modes, memory skip, priority monitoring, one-touch recall CALL channels, and 6 user-selectable channel steps. Comes with hand-mic, mounting bracket and DC power lead.

Specifications:

General
Frequency range: 144-148MHz, 430-450MHz
Channel steps: 5, 10, 12.5, 15, 20 & 25kHz
Dimensions: 140 x 40 x 155mm (w/o knobs)
Receiver
Sensitivity: Better than 0.15uV (12dB SINAD)
Maximum AF output: 3.0W into 4 ohms @ 5% THD
Transmitter
RF Output Power: 2m - 50/5W (high/low) 70cm - 35/5W (high/low)



Cat D-3310

\$1499
2 year warranty

YSK-1 Remote Panel Kit
Allows remote mounting of the FT-5200 front panel
Cat D-3311 **\$99.95**



Yaesu FT-530 2m/70cm Hand-held



A deluxe 2m/70cm dual-band hand-held transceiver offering easier operation and more features than ever before! The FT-530 provides a flexible dual receiver facility with separate volume and squelch controls, allowing you to listen on two frequencies in the same band, or one frequency on both bands! Plus, the exclusive Australian version features full 70cm band coverage (420-450MHz), selectable Auto Repeater Shift on both 2m and 70cm (suits Australian band plan), and extended receiver coverage as standard. Two VFOs and 41 tunable memories per band are provided, together with keypad or dial frequency entry, seven tuning steps and a one-touch CALL channel. The dual 5.5-digit LCD screen includes many functional indicators plus separate signal/P.O. bargraphs for both receivers. An LCD voltmeter function is provided so you can even monitor your battery's performance under load and estimate remaining battery life.

Other top features include: Inbuilt dual CTCSS encode/decode, CTCSS scanning, an auto battery saver (ABS) for extended battery charge life, a cross-band repeater facility and inbuilt clock with alarm and snooze functions.

Also provided is VOX circuitry for use with the optional YH-2 headset, a user replaceable lithium back-up battery, and DTMF selective calling and paging. A DC supply jack allows transceiver powering and NiCad charging, with RF output in four steps up to 5W at 12V.

For enhanced battery life, an auto power-off function turns the radio off after a pre-set period of inactivity, so you won't return to a flat battery. The FT-530 comes complete with a high-capacity 1000mAh NiCad battery, belt-clip, carry case and approved AC charger.

Specifications

Frequency range:

Transmit 144-148MHz, 420-450MHz
Receive 130-174MHz, 420-500MHz, 800-950MHz

Current Consumption:

Auto power off 150uA
Standby (saver on) 18.9mA (both bands)

Dimensions:

55(W) x 163 (H) x 35mm(D)

Transmitter:

Power Output: 5, 3, 1.5, 0.5 (at 12V)
RF Power Output: 2.0W (2m), 1.5W (70cm)
(Supplied 7.2V 1000mAh NiCad)

Receiver:

Sensitivity: 2m: <0.15uV
70cm: <0.18uV
(1uV bands only)
12dB SINAD)
Audio Output (12V) 300mW at 8 ohms

Cat D-3620

\$999

2 Year Warranty

MH-29A2B Remote Control Mic.

A compact speaker/microphone that provides a remote LCD screen with backlighting! Has duplicate keys for Call channel, VFO and memory selection, plus busy/Tx LED. Supplied with a user-programmable key. Suits FT-530 only.

Cat D-2119 **\$199**



Mastercharger 1 Fast Desktop Charger

New for '94! At last, an intelligent, fast desktop charger that not only suits most current Yaesu handhelds but also many previous models. Made in USA, the Mastercharger 1 is a compact fast charger that operates from 12v DC, and uses switch-mode technology and a Philips monitor I.C (with - Δ v full charge detection) to charge NiCad batteries between 6V and 12V.



Charge time varies between 1/2hr and 2 1/2 hours, depending on battery voltage and capacity. Supplied as standard to suit the FT-23/73, FT-411/411e, FT-470, FT-26, FT-415/815 and FT-530, its charging cradle can easily be replaced, allowing for the insertion of a new cradle to suit earlier transceivers (eg FT-209R/709 series) and, in the future, different brands/models handhelds. The Mastercharger 1 requires 12-15V DC at 1.3A, and is supplied with a fused cigarette lighter cable for vehicle use.

Cat D-3850

\$199

COMING SOON - CHARGING CRADLES TO SUIT VARIOUS KENWOOD, ICOM, AND ALINCO HANDHELDS.

FT-990 H.F All-Mode Base Transceiver

The FT-990 offers many of the features of the legendary FT-1000 in a more compact and economical base-station package. Its excellent front-panel layout, together with clear labelling, a large back-lit meter and an uncluttered digital display allows very straight - forward operation. The receiver uses a wide dynamic range front end circuit and two DDSs to provide a very low noise level and excellent sensitivity over the 100kHz to 30MHz range. Transmitter output is 100W on all HF Amateur bands (SSB, CW, FM), with high duty cycle transmissions allowed. The internal auto antenna tuner and an inbuilt power supply are standard features, while the customizable RF speech processor and Switched Capacitance Audio filtering facilities are unique to the FT-990. Other features include IF Shift and IF Notch filters, IF bandwidth selection, 90 memories and one-touch band-selection.

Cat D-3260

\$3995

Includes inbuilt AC power supply
Microphone optional extra.



2 Year Warranty

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***MAJOR AMATEUR STOCKIST STORES SHOWN IN RED**

AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator

Graham Ratcliff VK5AGR
Packet, VK5AGR@VK5WI

AMSAT Australia net:

Control station VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz. (Usually during summer).

Secondary 3.685 MHz. (Usually during winter).

Frequencies +/- 5 kHz for QRM.
AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$25 for Australia, \$30 for New Zealand and \$35 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Mode "X" and All That

A question that frequently crops up is to do with transponder modes. What do those letters mean? What are the amateur bands involved? What equipment requirements do they impose?

It must be a bit bewildering to the newcomer. After successfully grappling with what seems to be adequate station equipment and learning about apogees, perigees, times of acquisition, uplink and downlink frequencies you would expect a more or less clear run at the satellites. To your disappointment you find you can't access the transponder only to be told it was on a different mode at the time you were trying.

Here then is yet another set of facts to be learned, another facet to be mastered. It's a problem as old as amateur radio satellites. In designing the early satellites, one of the main decisions which had to be made was which bands to use for the telemetry signal transmissions. Conventional wisdom would have it that the HF bands would be no good as the signals would need to pass through the ionosphere with all its (then) unknown effects. The early "beacon only" satellites, the phase 1 birds, used VHF for this reason. The 2 metre band proved not to be entirely free of ionospheric effects so

this posed a real dilemma to the designers of the first transponders to be flown on amateur radio satellites. No doubt they would have liked to go up in frequency. Except for a relatively few diehard experimenters, the technology of the day did not allow that.

The possibility of 6 metres would no doubt have been canvassed. Once again this would have restricted the number of amateurs who could have made use of the satellites. Widely differing frequency allocations around the world were also a problem with 6 metres. On balance the designers opted for a 2 metre uplink and a downlink in the 10 metre band, deciding to risk the 10 metre propagation problems in order to gain the maximum exposure of this new amateur pursuit among the general amateur radio population.

Thus mode "A" was born. It was very successful. I don't remember it being called mode "A" in the early days as it did not have to be differentiated from any other mode. There were no other modes! As more satellites came along, however, the need to spread out became apparent. The times they were a-changing and more gear was becoming available. 70 cm was a viable alternative when OSCAR-7 was designed so it was provided with a transponder uplinking in the 70 cm band and downlinking in the 2 metre band. This became known as mode "B". This is still a popular mode today.

When OSCAR-8 came into being one of the transponders was designed and built in Japan. The 2 metre band is very crowded in Japan and this surely affected the decision to pioneer a new mode. The transponder had a 2 metre uplink and a downlink in the much quieter 70 cm band. This became known as mode "J" (for Japan). Mode "J" produced some problems (and still does) for the unwary. The frequencies are carefully chosen so as not to be in harmonic relationship. Despite this the proximity of the 3rd harmonic of the 2 metre uplink transmitter to the high sensitivity downlink receiver can produce many spurious signals in the downlink passband. Much work was done to overcome this and sharply tuned strip line filters became the order of the day.

When the high orbit satellites came on the scene it became possible to include a number of transponders in the design and allow for switching between them to a predetermined schedule. The pressure was to move into the UHF and microwave region. OSCAR-10 and later OSCAR-13 moved into "L" band. The "L" mode transponder required the user to uplink in the 23 cm band and its downlink was in the 70 cm band. This was to be the new experimenter's mode.

It certainly spurred a lot of people on

to play with the microwave region. The challenge was to build a transmitter stable enough for SSB use and with enough output to uplink a good signal into the satellite which could be as much as 40,000 kilometres away. This is no mean task. Even with the relative ease of building high gain antennas it is still as much a challenge today as it was when these satellites were launched.

Unfortunately, mode "L" has been fraught with problems. OSCAR-10 went out of control due to radiation damage to the computer memory and OSCAR-13's "L" mode failed some time ago. At present we do not have an amateur radio satellite with "L" mode transponder capability.

The next step up was the advent of "S" mode on OSCAR-13. This once again has a 70 cm uplink but the downlink is in the 13 cm band, around 2.4 GHz. This is the latest experimenter's band and many stations are finding the challenge to be a stimulating one. Good results can be obtained with antennas like loop Yagis and the helix. Home made converters are an option and of course the sky's the limit with many stations using dish antennas for reception.

Summary

Beginners will probably find mode "B" on one of the high orbit satellites an attractive starting point. However, there may be a better alternative for the newcomer. The Russian RS series of satellites have never deserted mode "A". The current RS satellites have transponders labelled "A", "K" and "T" which are HF to VHF modes involving the 2 metre, 10 metre and 15 metre bands. They require only the most basic station equipment.

The failure of the 70 cm transmitter on OSCAR-13 which disabled the "L" mode on that satellite also put an end to the "J" mode. At present there are no voice transponders operating in "J" mode.

"S" mode is still to be regarded as an experimenter's mode but the numbers are increasing.

Mode switching schedules are published regularly and switching is carried out according to MA number, ie at regular times each orbit.

Next month

I'll start taking a closer look at each of these modes one by one. The topic for May, a discussion of the requirements for a station capable of working mode "A" and related modes and some tips on working the current mode "A" satellites.

*359 Williamstown Rd. Yarraville VIC 3013

Packet VK3JT@VK3BBS

ar

Awards

John Kelleher VK3DP*

This month we continue with a selection from the French Awards Programme.

DUF (Diplome de l'Univers Francophone) May be claimed for having contacted/heard and having received QSL cards from countries on the list below.

DUF1 Awarded for contacts with 5 different countries in three continents.

DUF2 Awarded for contacts with 8 different countries in four continents.

DUF3 Awarded for contacts with 10 different countries in five continents.

DUF4 Awarded for contacts with 20 different countries in six continents.

DUF MEDAL A very nice medal which can be claimed by the proud recipients of DUF4.

DUF COUNTRIES LIST

EUROPE

01 France	F
02 Corsica	TK
03 Monaco	3A
04 Andorra	C3
05 French Army in FRG	DA/DL

AFRICA

06 Algeria	7X
07 Tunisia	3V
08 Morocco	CN
09 Cent Afr Rep	TL
10 Congo	TN
11 Ivory Coast	TU
12 Benin	TY
13 Gabon	TR
14 Rep of Guinea	3X
15 Mali	TZ
16 Mauritania	5T
17 Niger	5U
18 Senegal	6W
19 Chad	TT
20 Burkina Faso	XT
21 Cameroon	TJ
22 Togo	5V
23 Djibouti	J2
24 Malagasy Rep	5R
25 Mayotte	FH
26 Comoros	D6
27 Reunion	FR
28 Glorioso Is	FR/G
29 Tromelin Is	FR/T
30 Europa	FR/E
31 Juan de Nova	FR/J

5TH AMERICA

32 Fr Guyana

NTH AMERICA

33 St P & Miquelon	FP
34 Martinique	FM
35 Guadeloupe	FG
36 St Martin	FG/FS

37 St Barthelemy	FG/FS
38 Clipperton Is	FO0

ASIA

39 Vietnam	XV
40 Kampuchea	XU
41 Laos	XW

OCEANIA

42 New Caledonia	FK
43 Loyalty Is etc	FK
44 Chesterfield Is etc	FK
45 Wallis Is	FW
46 Futuna Is	FW
47 Vanuatu	YJ
48 Tahiti	FO
49 Leeward Is	FO
50 Tubuai	FO
51 Rapa	FO
52 Marquesas Is	FO
53 Gambier Is	FO
54 Tuamotu	FO

AUSTRALIA & ANTARCTICA

55 Adelle Land	FTBY
56 Kerguelen Is	FTBX
57 Amsterdam & St Paul	FTBZ
58 Crozet Is	FTBW

The Awards Manager is:

F91L DUBOIS Edmond

33, Les Tamaris

F-34340 Marseillan France.

Fees for the above award(s) are

DUF1 US\$4.00

DUF2 .. 5.00

DUF3 .. 6.00

DUF4 .. 11.00

DUF MEDAL .. 15.00

DTA (Diplomes des Terres Australes)

May be claimed for having contacted/heard and having received QSL cards from the territories listed below

Kerguelen Is FT8X

Amsterdam Is FT8Z

Crozet Is FT8W

Adelle Land FT8Y

DTA Proof of contact with 3 Territories.

OTA EXCELLENCE Proof of contact with all four territories.

The Awards Manager is:

F6GAXP POMEL Max

PO Box 73

F-63370 LEMPDES France. The fee is US\$ 6.00.

So, while we have diminished propagation, dig into those boxes of QSL cards, and see if you qualify. Good luck and good hunting.

*Federal Awards Manager
PO Box 300 Caulfield South VIC 3162

III

Club Corner

South East Radio Group Inc

It's hard to believe, but the South East Radio Group Inc is holding its 30th annual convention. Yes, that's right! Its 30th convention will be held over the weekend of 11 & 12 June 1994.

I believe that our group can justly and proudly claim that this convention is the longest continuously run convention in Australia.

This year the program has been altered and has even greater emphasis on Fox Hunting type events. This is in line with our responsibility to conduct the Australian Fox Hunting Championships each year. However, increasing emphasis is to be placed on the Home Brew competition. For the last few years, thanks to an anonymous supporter, the focus on Home Brew has been increased considerably. Unfortunately, to our disappointment and no doubt that of our benefactor, this has not seen the level of entries change appreciably. So come on all of you Home Brewers, "rolling your own" can't be that dead. It doesn't have to be flash, just home built. There are

three different sections ranging from Novice to Expert, so if you built it, bring it. Great prizes too!

The South East Radio Group convention promises to be a very popular spot on the amateur calendar so make sure that you don't miss out by booking your accommodation early. A list of recommended motels and caravan parks is available by writing to the Convention Coordinator at SERG, PO Box 1103, Mt Gambier, SA 5290

Moorabbin & District Radio Club

The Moorabbin & District Radio Club annual Hamfest will be held on Saturday 14 May. The location will again be the Brentwood Secondary College, located in Watsons Rd, Glen Waverley, map reference 71-C-7. Entrance is from Heath St and there is plenty of free parking space.

There will be an extensive display of the latest gear in all phases of amateur operation plus plenty of space for the sale of preloved items. Admission charge will

be \$3 per head. Snacks and hot food will be available all day. That means between 10 am and 3 pm. If you want to sell preloved gear then you should contact Trevor Armstrong VK3JJR on (03) 720 7609 after business hours. A six foot trestle will cost \$15 and a three foot one will cost \$10. Don't leave it too long to make a booking as space is always eagerly snapped up. A big new feature of the Hamfest will be a Home Brew competition which continues a long tradition of the M & DRC.

Entries are open to amateurs everywhere and there will be valuable prizes available including cash which can be spent on the spot. Be in it! You might win it! All enquiries about the home brew competition should be directed to David Armstrong VK3JXP/VK3PNL on (03) 808 8286 or 018 998 665. When you pay your \$3 to enter the Hamfest there is no further charge to enter the Home Brew competition. Entries must be entered by 11 am and will be judged by 12 noon. If you are booking a table for the sale of gear you must be there by 9.30 am.

If you are trying to obtain a licence or to upgrade your present call, why not use the M & DRC exam service? Exams are held on the 3rd Saturday of each month at the Combined Club Rooms in Turner Rd, Hightett. Enquiries about this club service should be directed to Jerry Viscaal VK3MQ at (03) 704 6355 after business hours.

Allan Doble VK3AMD

Wahroonga Amateur Historical Radio Association

In August last year a group of amateurs in the Wahroonga area, (20 kilometres north of Sydney in NSW) formed a new association specifically for the purpose of commemorating the 75th anniversary of the first radio message from the United Kingdom to Australia. The message sent by Marconi from Carnarvon in Wales to Ernest Fisk at Wahroonga was received on 22 September 1918.

In 1993 our group, using the special callsign VK2WAH, made contact with GB2VK, The Dragon Radio Club working from the old Marconi transmitting station at Waunfawr near Carnarvon. Throughout the 24 hour period many stations were worked world wide by both special stations. A tradition has now been started and an attempt will be made to work GB2VK on 22 September each year.

The Cornish Radio Amateur Club has invited us to participate in the 1994 International Marconi Day. We will be using the callsign VK2IMD and will be offering a special QSL card for a contact with our station. If direct QSLing is required the address is WAHRA, PO Box

600, Wahroonga, NSW 2076. A stamped addressed envelope MUST be included with all Australian direct cards, otherwise cards may be sent via the QSL Bureau.

Operation will take place for the 24 hour period from 0000/2359 UTC on Saturday 23 April 1994. The main mode of operation will be SSB on all HF bands with periods of CW or digital modes of communication being actively encouraged. Local stations will hear the VK2IMD callsign on various repeaters throughout the day.

The Cornish Radio Amateur Club offers a special award certificate for working International Marconi Day stations. The required standard for the 23 April 1994 event is to work twelve of the participating stations either as a full transmitting station or alternatively they offer the shortwave listener an award for logging 12 of the IMD stations.

All award claims should be made in writing giving a full extract of your log entries to Cornish Radio Amateur Club, IMD Awards Manager, PO Box 100, Truro, Cornwall, TR1 1 RX.

For the transmitting station claimant the cost is \$US10.00, 3.50 sterling or 12 IRCs. You require contacts with a minimum of 12 of the participating stations working two way on any mode employed. Be warned that only one contact with each participant will count towards the award, so a contact on two bands or on two different modes will count only as one contact.

For the SWL Award the cost is \$US5.00, 3.00 sterling or 8 IRCs. You require to have logged 12 two way QSOs and provide us with a full extract from your listeners log. As with the transmitting station claims we will allow mixed modes and bands but be warned each callsign will be counted just once towards the minimum of 12 required.

Stations to listen for on 23 April 1994 are as follows:- (alphabetical)
 CT1TGM — COIMBRA, PORTUGAL
 DA0IMD — BORKUM ISLAND
 E21MD — CROOKHAVEN, EIRE
 E41MD — GALWAY, EIRE
 GB0IMD — ISLE OF WIGHT
 GB1IMD — LEICESTER (SATELLITES)
 GB2GM — POLDHU COVE
 GB2IMD — RATHLIN ISLAND, N IRELAND
 GB2MDI — SALISBURY PLAIN
 GB2MID — SANDHANKS, POOLE, DORSET
 GB2SFL — SOUTH FORELAND LIGHTHOUSE
 GB4IMD — TRURO (THE CRAC STATION)
 GB4MD — OLD CARNARFON STN, WAUNFAWR
 GB4MDI — FLATHOLM ISLAND
 IY0GA — SARDINIA ISLAND
 I777? — CASELECCHIO DI REINO
 IY0ORP — ROCCA DI PAPPÀ, ROME
 IY0TIC — CIVITAVECCHIA
 IY1T1M — SESTRI LEVANTE, GENOVA
 IY4FGM — VILLA GRIFONE, PONTECCHIO

KIVWMD — CAPE COD, MASS
 KG8HMD — MARSHALL, CALIFORNIA
 OE77? — RAD O AUSTRIA NT VIENNA
 PY17? — RIO DE JANEIRO, BRAZIL
 VE1MD — GLACE BAY, NOVA SCOTIA
 VK2IMD — WAHROONGA, NSW
 VO1MD — ST JOHNS, NEWFOUNDLAND
 ZS6IMD — JOHANNESBURG, SOUTH AFRICA

In 1992 134 awards were issued and it is hoped many more claims will appear in 1994. We look forward to your company on the bands on Saturday 23 April 1994 and wish each and every one of you the very best of luck.

Jo Harris VK2KAA
President WAHRA
Packet VK2KAA@VK20P

Brisbane North Radio Club

The World Gymnastic Championships will be held at the Bondi Entertainment Centre, Brisbane from 19 to 24 April, 1994.

To publicise and commemorate this event, Brisbane North Radio Club intends to use a special callsign V14WGC, for the period from 3 to 30 April 1994 inclusive operating HF on 80, 40, 20, 15 and 10 metres (not necessarily all at the same time).

For the actual period of the games (19 — 24 April) the station will operate portable from the Games site from which 2 metres will also be active.

Operators will try to maintain a watch for a number of hours during each 24 hour period. CQ calls will be made on bands appropriate to the propagation conditions on SSB using the lower portion of the band to include Novice frequencies. CW will be available when possible on appropriate frequencies depending on the availability of CW operators. A special QSL card will be forwarded upon proof of contact (QSL card or log extract). Forward to the Awards Manager, Brisbane North Radio Club, PO Box 78, Chermide QLD 4032.

Graham Clayton VK4BGC

Riverland Radio Club/Sunraysia Radio Group Hamfest

These groups will be holding their combined Hamfest in Renmark on Saturday 21 May 1994 from 0930 to 1600 hours. It will be held in the Tucker Hall at the Renmark oval.

This is the first time such an event has been staged in the Riverland of South Australia. As this area is such a rich wine and citrus growing area, it is hoped that this event will attract a lot of interest, so allow time to sample the local product.

To add interest for non-ham family members there will be a supporting hobby and craft section. So, to those who have a hobby besides amateur radio, you will be welcome to display and demonstrate

your particular hobby. Plans are well in hand for static and flying model aircraft displays. This is also a good time to dispose of all that unwanted equipment, whether it be radios, computers, spare radio parts or radio magazines.

Following the Hamfest a dinner will be held in the Renmark Hotel. A three course dinner will cost \$16.00 per head and must be booked. Accommodation is available in Renmark and Berri, and includes hotels, motels and on-site vans. Book early to avoid disappointment.

General admission will be \$2.00 per family, trestles for hobby displays are free, and trestles for hobby, disposals and commercial sales are \$10.00 each. They must be booked with the Secretary, Riverland Radio Club, PO Box 646, Renmark SA 5341. Enquiries can also be sent to Doug, VK5GA@VK5BRL.

Adrian Wallace VK5AW

PIO RRC Hamfest Committee

Townsville Amateur Radio Club

A Novice level amateur radio course is being conducted by Iain Morrison on behalf of the Townsville Amateur Radio Club Inc. The course is currently under way at the club rooms located at the SES complex, Green St West End every Saturday from 2 pm to 5 pm. For further information please call 077 797 889.

It's on again! The annual pilgrimage by the steamy north's amateur radio operators to South Mission Beach will happen this Queen's Birthday long weekend with setting up on Friday evening 10 June and packing up on Monday 13 June.

If you require van accommodation book now with the Village proprietors, else join the tent city. Any which way, feel really welcome when the village cassowaries give you place and provisions the seal of approval.

Anyone Interested in radio communications is welcome to attend at the Beachcomber Coconut Village, The Esplanade, South Mission Beach. A Village station will be on air monitoring the amateur radio VHF simplex call channel and, if conditions permit, the Cairns VHF repeater.

Summerland Amateur Radio Club

Thirty Fifth Annual Meeting

Sunday, 20 February 1994 was the date of the 35th Annual Meeting of the Summerland Amateur Radio Club. The venue was our clubrooms at Richmond Hill where radio transmitting and test equipment is available for use by members. We have a current membership of 86. The club is involved in all forms of

Amateur Radio and Computer (radio related) activities.

Office-bearers for 1994 are:-

President Steve Myers VK2JSM
Vice-President Iain McMillan VK2XVR
Secretary Ric Virtue VK2EJV
Treasurer Karleen Foster VK2VKT
Publicity Committee Graeme Virtue VK2GJ
 Peter Richens VK2FSD & Andrew Cook VK2NDC.

The Examinations Officer, Gerry Creswell VK2IGC, reported that during the year 41 candidates had attempted 53 subjects for 31 passes, resulting in 7 new callsigns being allocated. The club will continue to effect improvements to the club building and grounds as time and finances permit. The regular monthly outings will be continued and ideas are sought for further activities. Our emergency network (WICEN) is being consolidated and the usual weekly radio nets will continue on our various radio repeaters.

EXPO a success

Despite a few exhibitors failing to show, the recent Computer & Electronics EXPO, conducted by the Summerland Amateur Radio Club in the City Hall Lismore, was considered by all to be a very successful venture.

Around 500 paying customers, over the day, mingled with 15 stall-holders. Considerable interest was displayed in the latest in computer equipment and programs. Much money and goods changed hands during the day. Two of the tables, with pre-loved gear, were empty by lunchtime and most of the other display folk took away a lot less than they brought. The refreshment kiosk did a brisk trade. All members of the public and exhibitors spoken to agreed that it had been a good day and that we should do the same again next year, or sooner. Many thanks to the exhibitors who made the day, and to all those folk who gave their support.

Graeme VK2GJ, Publicity Officer

Contests

*P Nesbitt VK3APN — Federal Contest Coordinator**

Contest Calendar Apr-Jun 94

Apr 23	SP DX SSB Contest	(Mar 94)
Apr 30	JA DX CW Contest	(Mar 94)
	(High Bands)	(Mar 94)
Apr 30	Israel DX CW/SSB Contest	(Mar 94)
Apr 30	"King of Spain" CW & SSB	(Mar 94)
Apr 23/24	Helvetia DX CW/SSB Contest	(Mar 94)
May 7/8	ARI DX Contest CW/SSB/RTTY	
May 14/15	CQ-M Contest (CIS)	
May 14/15	Sangster Shield (80 m ZL)	
May 14/15	Danish SSVT Contest	
May 28/29	CQ WPX CW Contest	(Feb 94)
Jun 4/5	RSGB Field Day CW	
Jun 11/12	ANARTS (VQ) RTTY	
Jun 18/19	VK Novice Contest	
Jun 18/19	All Asia CW DX Contest	
Jun 25/26	ARRL Field Day	

A couple of interesting and unusual contests came to light this month, namely the Sangster Shield which is popular in ZL, and a Danish SSVT contest. As the Danish amateur society doesn't usually send contest results to the WIA, if anyone enters their contest and subsequently receives the results, I would appreciate a copy for publication.

I had hoped this month to present an updated version of the "General Rules and Definitions". However, due to lack of space, this will have to be held over. Please note the revised date for the CQ-M Contest. Thanks to John VK3KWA for

handling the Ross Hull and VHF-UHF Field Day Contests, and CQ, QST, Radio Communications, and Break-In. Until next month, good contesting!

**73,
Peter VK3APN**

Contest Details

The following contest details should be read in conjunction with the "General Rules & Definitions" published in April 1993 *Amateur Radio*.

ARI International DX Contest CW/SSB/RTTY

2000z Sat to 2000z Sun, May 7/8

This contest occurs each year on the first full weekend of May. Anyone can work anyone else, and categories are single operator CW, SSB, RTTY or mixed; multi-operator single transmitter mixed; and SWL mixed. Bands are 160-10 m (no WARC). The same station can be worked on the same band once each on CW, SSB, and RTTY, but the multiplier can be claimed only once for that band. Once a band or mode has been used, 10 minutes must elapse before it can be changed. Send RS(T) + serial number — Italian stations will send RS(T) + province.

Score 10 points per Italian QSO, 3 points per QSO with stations in another continent, 1 point per QSO with stations

in own continent, and zero points per QSO with stations in own country. Final score equals total points from all bands times total multipliers from all bands.

Multipliers are the sum of Italian provinces (max 102) and countries (excluding I and ISO) on each band. Province codes are 11: AL AT BI CN GE IM NO SP SV TO VB VC, IX1: AO, I2: BG BS CO CR LE LO MI MN PV SO VA; I3: BL PD RO TV VE VR VI; IN3: BZ TN, IV3: GO PN TS UD; I4: BO FE FO MO PR PC RA RE; I5: AR FI GR LI LU MS PI PT SI; I6: AN AP AQ CH MC PS PE TE; I7: BA BR FG LE MT TA; I8: AV BN CB CE CZ CS IS KR NA PZ RC SA VV; I79: CL CT EN ME PA RG SR TP AG; I0 FR LT PG RI ROMA/RM TR VT; ISO: CA NU SS OR.

Use a separate log for each band, and a check log (ie sorted callign list) for 100 + QSOs on any band. Send log within 30 days to: ARI Contest Manager I2UIY, PO Box 14, 27043 BRONI (PV), Italy. Logs on disk are welcome and accepted **ONLY** if you use the MS-DOS logging program available from the contest committee for US\$5 (to cover disk/postage only).

CW-M Contest (CW, Phone, Mixed)

2100z Sat to 2100z Sun, May 14/15

Sponsored by the Russian Radio Amateur Union and the Krenkel Central Radio Club, this contest runs on the second full weekend of May each year. Categories are single operator, single and all band; multioperator single transmitter; SWL. Bands are 80-10 m, and can be changed only once per 10 minutes. No cross mode QSOs please. Exchange RS(T) plus serial number. Score 1 point per QSO within own country, 2 points with a different country in the same continent, and 3 points with other continents. The final score equals total points times total number of countries from each band. Countries are according to the R-150 list, which is similar to the ARRL DXCC list except for former USSR countries. Serious competitors should review the R-150 list. Continents are as for WAC. Awards apply Mail logs by July 1 to "Krenkel Central Radio Club, CQ-M Contest Committee, Box 88, Moscow, Russia".

Sangster Shield

0800-1100z Sat & 0800z-1100z Sun, May 14/15

This unusual contest emphasises low power operation. Work ZLs on 80 m CW. QSOs can be repeated once per 1/2 hour period, ie 0800-0830, 0830-0900, etc. At least 5 minutes must elapse between repeat QSOs with the same station, or else another station must be worked in between. Send RST plus power output,

ZLs will send RST/branch/power. Non-ZLs using up to 5 W score 10 points per QSO with a ZL, if the ZL worked is using up to 5 W; or 5 points per ZL using over 5 W. Non-ZLs using more than 5 W score 5 points per QSO with a ZL using up to 5 W. QSOs between stations where both use more than 5 W are invalid for the contest. Final score equals total points times number of ZL branches worked. Send logs to reach "Contest Manager ZL3KR, 4 Exton Street, Christchurch 8005, NZ" by 9 June. Certificates will be awarded to the highest scoring non-ZLs in their respective call areas.

Danish SSV Contest

0000z Sat to 2400z Sun, May 14/15

Use IARU recommended frequencies for SSTV on 80-2 m. Work stations once per band. Score 2 points for the first QSO with any DXCC country, 1 point for further QSOs, and 1 bonus point for each Danish QSO. Final score is the total points. Awards apply. Send logs by June 6 to "Carl Emkjer, Soborgpark 8, DK-2860 Soborg, Denmark".

Results of 1993 ARI DX Contest

The following entrants led Oceania in the mixed, CW, and SSB categories respectively (Call/Class/QSOs/Mult/Score):

VK2APK	SO.MXD	434	146	288788
VK2DID	SO.CW	40	34	8160
P28JA	SO.SSB	8	7	560

This Year's Ross Hull Contest Results

The highest overall score again goes to Roger Steedman VK3XRS, who also had top score on 6 m, 2 m and 70 cm. Chris Davis VK1DO came second, with Ross Barlin VK2DVZ a close second on 2 m. On 23 cm, all I can say is that it would have been very boring to do nothing but listen for three weeks! It is good to see some 10 GHz activity also.

Call	Name	6 m	2 m	70 cm	23 cm	3 cm	TOTAL
VK3XRS	R. Steedman	718	2428	2254	1420	208	7028
VK1DO	C. Davis	428	1544	1757	290		4019
VK2DVZ	R. Barlin		2108	854	290		3252
VK2ZAB	G. McDonald	12	1940	987			2939
VK3CY	D. Clarke		1208	1323			2531
VK3AUI	G. Sones	93	660	1071	650		2474
VK3TU	A. Gnaccarini	50	592	959	660		2261
VK3ALZ	I. Berwick	101	560	791	600		2052
VK3DEM	R. Ashlin	30	820	756	200		2030
VK3KWA	J. Martin				1640	224	1640
VK7IK/3	I. Kucerans				1610		1610
VK7XR	A. Hay	29	632	644	80		1385
VK3KTR	R. Rode		532	693			1225
VK7KAP	A. Perkins	1	340	483	90		914
VK1DA	A. Davis	155	308	182	70		715
VK3WAL	K. Hewett				224		224
VK2EDA	A. Davis		200				200
VK5NC	T. Niven						Check Log

Ross Hull Contest 1993 — 1994 Results

The number of logs submitted this year was about the same as usual. Some entrants reported more activity from fewer number stations than last year. I have totalled the number of different stations appearing in the Ross Hull and Field Day logs, and the table shows those worked on each band in each state. Many of these stations may not normally be "DX hounds" — some were tracked down on FM nets — but the figures at least show the pattern of activity:

CallArea	6 m	2 m	70 cm	23 cm	3 cm	Total
VK1	7	14	8	6	—	35
VK2	15	46	10	4	—	75
VK3	24	69	37	31	3	164
VK4	44	16	7	3	—	70
VK5	25	59	21	3	—	107
VK6	9	24	—	—	—	31
VK7	4	5	3	3	—	15
Other	16	4	1	—	—	21
TOTAL	143	233	86	51	3	

("Other" comprises 1 VK8, 5 JA, 8 ZL, 1 P2 and 1 FK8 on 6 m, 4 ZL on 2 m, and 1 ZL on 70 cm).

Again most logs came from VK3, although VK1 and VK5 had higher participation rates per capita. Activity in other states is still disappointing, especially VK6, where the only contest activity on any band above 6 metres was on 2 metres FM.

This, combined with the recent rash of new records, will hopefully lead to more interest in the higher bands next time.

I would like to congratulate Roger on another herculean effort. This is his 5th consecutive win, equalling the record set by Kerry Adams VK8SU in the early 70s. Congratulations to all other entrants as well.

Time for Some Changes?

The rules have not changed much for 4 years. During this time some aims have been achieved, and others not. For example, the level of activity is still very poor outside the south-eastern states, due partly to the large number of local contacts possible in the more densely populated areas.

It takes a relentless effort to fill the log with large numbers of contacts, and many people with jobs or family commitments cannot afford to spend the amount of time it takes. However, a shorter contest might not help either, as even one week of "living in the shack" could be impossible for many. The problem is not the number of days, but the number of hours per day that have to be spent. A shorter contest could also make it likely that many amateurs — and the best propagation — might be absent during the contest.

I feel the solution is to reduce the number of contacts that have to be made, and increase the time available for making them. What I propose is to extend the contest to cover more of the DX season, up to say 8 weeks, and to drop the "best 7 days" scoring and replace it with scoring based on the best 100 contacts made on each band.

This would make it possible to build up a competitive log by taking advantage of DX openings as they occur, rather than having to spend all day "working everything that moves". It would also encourage more DX activity and reduce the scoring advantage of people in more densely populated areas.

One entrant has suggested that this approach could deter those with more modest stations, who cannot work as much DX as the "big guns". My feeling is that most people who enter under the present rules accept the fact that they probably will not win, and yet they still join in. My hope is that they would continue to enter, and that the proposed rule changes would make the contest more attractive to others as well.

Narrow band DX operation is a minority activity nowadays and the contest plays a fairly major role in stirring up SSB and CW activity. We must try to get more stations involved and spread the activity over a longer period. If we cannot do this, one day we may wake up after our winter hibernation and find the DX calling frequency has become an FM net. Use it or lose it!

Other possible changes are increased publicity outside the WIA, and perhaps confining 6 m activity to 52 MHz and up. Any and all comments are invited!

List of Winners, 1950 — 1994

1950 — 1951	VK5QR	R. Galle
1951 — 1952	VK5BC	H. Lloyd
1952 — 1953	VK4KK	A. K. Bradford
1953 — 1954	VK6BO	R. J. Everingham
1954 — 1955	VK4NG	R. Greenwood
1955 — 1956	VK3GM	G. McCullough
1956 — 1957	VK3ALZ	I. F. Bernack
1957 — 1958	VK4ZAX	D. R. Horgan
1958 — 1959	VK3AFZ	W. Roper
1959 — 1960	VK5ZDR	M. J. McMahon
1960 — 1961	VK4ZAX	D. R. Horgan
1961 — 1962	VK5ZDR	M. J. McMahon
1962 — 1963	VK4ZAX	R. W. Wilkinson
1963 — 1964	VK5ZDR	J. R. Beames
1964 — 1965	VK3ZER	J. H. Lehmann
1965 — 1966	VK3ZDM	R. W. Wilkinson
1966 — 1967	VK5SH	C. M. Hutchesson
1967 — 1968	VK3ZER	R. W. Wilkinson
1968 — 1969	VK5ZKR	E. F. Blanch
1969 — 1970	VK3ZER	W. K. Adams
1970 — 1971	VK4ZFB	H. L. Hobler
1971 — 1972	VK5SU	S. R. Gregory
1972 — 1973	VK4DO	H. L. Hobler
1973 — 1974	VK3OT	T. R. Naughton
1974 — 1975	VK4DO	W. J. Howse
1975 — 1976	VK3ATN	G. L. C. Jenkins
1976 — 1977	VK6KZ	T. D. Niven
1977 — 1978	VK3ZBJ	R. K. W. Steedman
1978 — 1979	VK3ZBJ	
1979 — 1980	VK3ZBJ	
1980 — 1981	VK6KZ	
1981 — 1982	VK3ZBJ	
1982 — 1983	VK3ZBJ	
1983 — 1984	VK3ZBJ	
1984 — 1985	VK3ZBJ	
1985 — 1986	VK3ZBJ	
1986 — 1987	VK3ZBJ	
1987 — 1988	VK3ZBJ	
1988 — 1989	VK3ZBJ	
1989 — 1990	VK3ZBJ	
1990 — 1991	VK3ZBJ	
1991 — 1992	VK3ZBJ	
1992 — 1993	VK3ZBJ	
1993 — 1994	VK3ZBJ	

VHF-UHF Field Day 1994:

Results

The level of activity this year was generally good, although the bands went dead silent in my area after the first 24 hours. The south-eastern states again had the lion's share of activity. The highest activity per capita was in VK1, and the lowest was in VK4, where there were no portable stations at all. Shame and scandal!

Logs were generally well presented, but most had to be re-scored — many thousands of points were added to the logs and no log finished up with fewer points than were claimed. Some entrants claimed contacts with a home station, followed shortly after by the same station signing /P or /M. The ruling is that the station is the same even if the location is changed.

Some entrants also claimed points for multiple contacts with the same station under different call signs. This is possible if there are multiple operators who give out numbers using their own call signs with a "/P". These contacts were allowed this year, but next year the rule will be that a station is only portable if its equipment — not its operator — has changed location.

It was pointed out that home stations are in a different section from portable stations, therefore there is no point in giving double points to portable stations. I admit to woolly thinking on this, and next

year the scoring for all sections will be the

same.

One entrant pointed out that it is unfair to allow 24 hour stations to enter the six hour section, because they do not have to do all the work within the one day, and can pick their best six hours. The point is taken and this will be changed. However, it will be noted that the winner of the six hour section this year was not a 24 hour entrant.

There were several entries from "partnerships" of two operators. According to the rules, these are multiple operator stations, even though they may not have the same resources as a big club station. Should there be a separate section for these "partner" stations? Or should they be allowed to enter as two separate single-operator stations who just happened to be at the same location?

One entrant objected to the locator based scoring system. One reason for using this system is to stimulate interest in the WIA Grid Square Award, and another is to simplify log-keeping. I am inclined to retain locators, since that seems to be what the majority want.

For next year, I assume a mid-January date would still be the most suitable — say January 14/15. Any comments or other suggestions would be much appreciated.

Results

All that said, at last we come to the results! For the second time, Rob Ashlin VK3DEM has poked a major hole in the troposphere and thus obtained a stupendous score in Section A. Congratulations Rob, I hope you will recuperate in time for the next one. Phil Helbig VK5AKK came second with an excellent score, and in Section B the prize went to Ron Cook VK3AFW, closely followed by Doug Friend VK4OE.

In the multi-operator section, the Geelong Amateur Radio Club won again with a very high score, followed by a near-tie between VK1DO and VK5BW. The top score for a home station went to Des Clarke VK3CY. My thanks and congratulations to all those who made the Field Day a success, and I hope you will all be back next year.

Help stamp out stolen equipment — always include the serial number of your equipment in your Hamad.

CALL	NAME	6 m	2 m	70 cm	23 cm	3 cm	TOTAL
Section A — Portable, Single Operator, 24 Hours							
VK3DEM	R. Ashlin	150	9776	7616	1280	96	18918
VK5AKK	P. Helbig	224	9380	2842	120		12546
VK4OE/2	D. Friend	90	1680	1610	880		4260
VK3XEX	M. Batt	28	1536	952			2516
VK5XE	I. Northeast		1536				1536
VK6BWI	P. Parker		1520				1520

Section B — Portable, Single Operator, 6 Hours

VK3AFW	R. Cook		1904	1050			2954
VK4OE/2	D. Friend	70	760	1050	300		2180
VK3XEX	M. Batt	16	576	448			1040
VK2DXV	W. Jirgens		504	126			630
VK5XE	I. Northeast		704				704

Section C — Portable, Multi Operator

VK3ATL	(1)	1778	13624	16296	1620		33318
VK1DO	(2)	192	7392	5488	1080		14152
VK5BW	(3)	700	9680	2604	200		13184
VK1TRT	(4)	200	5456	3234	520		9410
VK1DA	(5)	312	2496	1218	280		4306
VK7XR	(6)	40	440	448			928

Section D — Home Station

VK3CY	D. Clarke		2112	1372			3484
VK3AUI	G. Sones	48	980	1280	170		2458
VK3KWA	J. Martin	3	288	392	480		1163
VK5NY	R. Bowman	12	96	105	20		233
VK5BD	J. Haseldine						

Check Log

(1): K. Asplin VK3DOW, L. de Vries VK3PK, A. Forster VK3AJF, C. Leone VK3BCL, G. Gnaccarini VK3BRZ, A. Gnaccarini VK3TU, M. de Vries (SWL)

(2): C. Davis VK1DO, G. Rozenberg VK1CD

(3): A. Raftery VK5BW, A. Russell VK5ZUC, J. Brayley VK5AJQ

(4): T. Roulston VK1TRT, W. McIntyre VK2IFR

(5): A. Davis VK1DA, R. Apathy VK1KRA

(6): A. Hay VK7XR, A. Perkins VK7KAP

Some Comments from the Logs

"The thought of setting up a multiband VHF station in time for a 6 am start is rather daunting... "An excellent contest and great fun... "Would have done better but the tent was blown down by gale force winds... "I did all the operating and the others went through five slabs of beer... "Many operators did not know the contest was on... "Apart from poor conditions, heavy winds, rain, thunder and lightning, we had a really good time..."

ar

WIA News

Standard Time/Frequency Service

Here's a reminder of Australia's own Standard Time and Frequency transmission service, station VNG.

The service has continuous transmissions on 2500 kHz, 5000 kHz, 8638 kHz and 12,984 kHz. In addition, transmissions on 16,000 kHz operate between 2200 and 1000 UT.

On the 2.5, 5 and 16 MHz transmissions, a talking clock announces the time each minute, with a spoken station identification every 15 minutes.

There are no voice announcements on the eight and 12 MHz transmissions. These have a "VNG" Morse ident every 15 minutes.

Ham Log is the gold standard log program — world-wide

Neil Duncan in ARA said "Professionally-presented product. This is the way to do it properly. I have no hesitation in recommending the package...". And that was Version 1!!!.

On version two, Len Shaw wrote: "The author has gone considerably further (on features) than in any log program... you are unlikely to find a better log-keeping program anywhere. Having seen and used a wide variety of shareware and commercial programs, I believe this one to be excellent value for money. I would say the same if it was double the cost." Born in 1990, we now have version 2.5!

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Divisional Notes

Forward Bias — News From the VK1 Division

Rob Apathy VK1KRA

The ACT Division held its Annual General Meeting in February introducing a largely new committee. This is not to suggest that the membership was in any way unhappy with the old committee but change is inevitable and as some say a change is as good as a holiday. In fact Christopher Davis has done an excellent job as President but has decided to step down and spend more time with his family. Hugh Blemings our secretary who came in at short notice has very heavy work commitments and simply cannot devote the necessary time. So the old committee retires with our gratitude for a job well done to be replaced by the new with fresh energy, ideas and their own way of tackling things.

While changes may be necessary we are not about to embark on a crash program and our members can expect ample opportunity to have their say. The formula used for broadcasting and meetings have stood the test of time and are likely to remain unchanged. A few questions remain as they have been with us for some time: the value of maintaining the Divisional office at the Griffin Centre at just under \$1000 per year must remain under constant scrutiny. This is an emotive topic as some members feel that the office is a necessary part of the service provided to our members. I am not convinced of the economical viability of the office and this topic will remain at the top of our list for some time.

In the past our committee meetings were held before the general meetings. While the arrangement suited some people the new committee expressed a desire to go back to a more traditional setting where meetings are held two weeks ahead of the general meeting. While this means giving up one extra night per month the consensus of the new committee was that they would be more comfortable with such an arrangement.

We finished the year in a financially healthy position thanks largely to the good work of Don who has agreed to stay on in the same job for another year. There are some signs, however, such as the long awaited fee for repeater sites, associated legal costs and general increase in a variety of areas such as rent, that fees may have to be reviewed later this year.

Our new Federal Councillor is Richard Jenkins a well known member of the amateur community in Canberra who has

agreed to take over from me. I have now completed my three year contract that I agreed to. I am certain that Richard will be an excellent ambassador for us on the Federal Council.

Most sincere thanks are also due to Ted and Richard for the tireless work done over the past years looking after our education program in the ACT and Jan for looking after the examination service so well. While Ted and Richard are retiring Jan has agreed to stay on for a while. There are always a lot of people behind the scenes who are not seen and maybe not even heard who are never the less vital to our operations. We are blessed in the ACT with an excellent repeater site and a top repeater thanks to the work of Bob Milliken and Paul Bell. I would like to take this opportunity to thank them for their dedication, advice and hard work.

More on the new committee in the next issue — hope to see you at the meeting in April. Please note that the meeting is on 25 April, ANZAC Day.

VK3 Notes

Jim Linton VK3PC

Annual General Meeting

Members of the WIA Victorian Division should have received notification of the annual general meeting, and copies of annual reports and balance sheet.

The AGM will be held on Wednesday, 25 May at the Ashburton Library, High Street, Ashburton, starting 8 pm sharp.

The meeting of members, a requirement under Corporations Law, is to formally receive annual reports, elect the 1994-95 council, and appoint auditors.

ATV Repeater

The amateur television repeater VK3RTV is beaming its signal to the Greater Melbourne and Geelong area via a new antenna.

Peter Cossins VK3BFG says the repeater was off air for four weeks recently after the antenna inadvertently suffered damage due to site works.

Up until then VK3RTV, first licensed by WIA Victoria on 5 September 1978, had been in continuous service except for about a total of about two weeks until the recent outage.

Peter was eager to get the repeater back on air and with the help of friends built and installed an 8-phased horizontal array antenna.

Those assisting with the task were ground crew Phil VK3AWG, and Neil

VK3BCU, and performing the rigging tasks at the Olinda site was Geoff VK3JDJ

WIA Victoria paid the costs of raw materials for the antenna and expressed appreciation to Peter VK3BFG and the ATV Group for their efforts in keeping VK3RTV on air.

Novice Class

A broad range of people are now studying for their Novice licence at the 1994 WIA Victoria theory and Morse classes.

Some 20 enrolled in the theory class run by Rob Carmichael VK3DTR, and a lesser number were in the Morse class being instructed by Bert Hanson VK3BAW

Rob is well known to the many of his previous class students who are now on air under their own call signs, while Bert has returned to teaching after a break of many years.

There was an interesting trend with this year's classes having more doing the theory than the Morse class, usually the numbers were about equal.

It appears a number of people are preparing to qualify for the proposed no-code VHF/UHF Novice licence.

Mobile Antennas

The road traffic authority VicRoads is concerned about some antennas mounted on the front bumper, bull bar or other front part of a vehicle.

Its publication "Vehicle Standards Information" issue 29 refers to the Road Safety (Traffic) Regulations 1988.

The regulations require a driver to have a "full and uninterrupted" view of the road, any traffic ahead and to each side of the vehicle.

Vehicles must also meet the "Standards For Registration" which ban the fitting of anything which would prevent a driver having an adequate view of the traffic.

VicRoads is concerned about antennas of more than 30 mm in diameter which encroach into the driver's field of view.

"The aerial or mounting should not obscure or otherwise adversely affect the performance of visibility of headlamps, parking lamps, turn signal lamps or any other mandatory lamp or reflector," it says.

In addition the antenna must be fitted securely, and not have any sharp edges or protrusion which could increase the risk of injury to pedestrians or cyclists.

The publication also recommends that the antennas be non reflective and it prefers a matt black finish.

Emergency or special purpose vehicles requiring the fitting of these antennas which cannot meet the guidelines may apply for a conditional registration.

Anyone needing further information should contact VicRoads, or write to the Manager, Vehicle Safety Branch, 60 Denmark Street, Kew 3101.

5/8 Wave — VK5 & VK8 Notes

Rowland Bruce VK5OU

Hey! Come on guys, don't mess around with the title, (*Amateur Radio* February 1994.) This column isn't just "VK5 Notes". VK8 is part of the Division too and the title of 5/8 Wave was coined by Jenny Warrington VK5ANW, the first compiler of it, to denote the unique status of the Division in covering two call areas. For those of you interested in zones it has a foot in both 29 and 30 in the CQ scheme of things. It must be admitted though that there isn't much about the Territory very often, but this is a factual report; I don't make things up as I go along; I need your input to make the column representative.

The February General Meeting was a nostalgic affair. President Bob VK5BJA, had put together a tape from video clips of the Jubilee 150 year's activities, 1988. There were many well remembered events and many recognisable faces, but don't the years take their toll, even only eight of them? Where has the white hair come from? For that matter, where has the hair itself gone to? Do you remember working the Jubilee 150 stations? The Kangaroo Island lighthouse, the Overland Train, the Jubilee 150 train, the Falle and the Marlon Centenary station? Do you have the Jubilee 150 certificate signed by the Premier, John Bannon?

The last weekend in February saw the holding of the first Clubs' Convention since 1991. Again some old faces, but also some new. It's good to see that these are often younger too. Many things were discussed and ideas put forward (some new, some old) and, being a residential weekend, much rag chewing took place well into the night. I could not attend the whole weekend but I intend to get a copy of the minutes when they are completed, to form the basis of several months' 5/8 Waves.

Because of the Christmas and New Year break, a longer than normal list of new members was approved at the February meeting. Welcome to B K Milne VK5BKM; T K Munn VK5NDD; J D Woolner VK8ZAO, D M Simkins VK5KWW; S B Renshaw VK8SR; D J Richards VK5NDR; J Ward VK5KBI; R King VK5NLK and J P Malusa. It is sad, too, to report the passing of W R Franzl, who held the two call signs of VK5FR and VK5VK, depending whether he was on the mainland or Kangaroo Island. He was a strong supporter of the Jubilee 150 referred to above.

Education Notes

Brenda M Edmonds VK3KT*

Of late I have been contributing these notes only in alternate months to allow space for the many other regular columnists. However, I have asked for space this month in order to make a specific statement.

During February, at least two Divisional broadcasts carried information about examination matters which was incorrect. It was stated that:-

- Questions on FM may appear on Novice Examination papers;
- FM is not on the Novice syllabus; and
- A candidate choosing an incorrect answer to a question on FM would not be penalised

Please be assured that FM is on the Novice syllabus. It was listed in the original DOC 71 in 1969, and has appeared in each reprint since. There has

never been a policy of discounting questions on FM if they appear. Candidates or instructors who have been confused by these statements are advised to obtain a copy of RIB 71, which has recently been reprinted by the SMA.

As I have said previously, work is proceeding on the revision and extension of the theory question banks. The AOCB bank is proceeding well, and should be completed soon. Until the revision is completed the current system for producing papers from the existing, modified banks will continue.

Interested persons who wish to make comments are invited to write to me at the address below.

*Federal Education Coordinator
PO Box 445, Blackburn, VIC 3130

FTAC Notes

John Martin VK3KWA*

New 70 cm Record

The South Australian 70 cm record between VK5NC and VK8UD has been broken by a contact between Roger Bowman VK5NY and Don Graham VK8HK. The new record distance is 21499 km. Don commented that it had been eight years since he last worked Adelaide on 70 cm! Congratulations to Roger and Don.

13 cm Band Plan

Last month I mentioned the need for a new band plan to cope with our loss of spectrum space below 2400 MHz. The segment 2400 — 2450 MHz is reserved entirely for satellites at present, but we will have to plan for a number of other uses as well.

In other countries (Japan, for example), a segment up to 2405 MHz has been kept clear for satellites. Current satellites do not operate below 2401 MHz, so the segment 2400 — 2401 MHz appears to be the best spot for the new narrow band segment. The draft plan includes provision to reshuffle this part of the band in response to any major changes in satellite allocations.

The draft plan is shown below. There is nothing final about it and any comments would be appreciated. I do not know how much time we have to finalise the new

plan, but I assume that the "crunch" will not come for some months yet.

2400 — 2401 NARROW BAND MODES (EME, terrestrial DX, beacons etc as per existing plan for 2304 — 2305 MHz)

2401 — 2405 SATELLITES

2405 — 2406 FM SIMPLEX — voice

2406 — 2407 FM SIMPLEX — digital

2407 — 2410 RESERVED (Future use depends on satellite allocations. Satellite segment could be changed and NB/FM segments moved higher if necessary).

2410 — 2412 FM REPEATER/LINK OUTPUTS (20 MHz offset)

2412 — 2430 ATV CHANNEL 1 (2421 +/- 9 MHz)

2430 — 2432 FM REPEATER/LINK INPUTS (20 MHz offset)

2432 — 2450 ATV CHANNEL 2 (2441 +/- 9 MHz)

*Federal Technical Advisory Committee Chairman
PO Box 300 Caulfield South VIC 3162

Don't buy stolen equipment — check the serial number against the WIA stolen equipment register first.

How's DX

Stephen Pall VK2PS*

Whilst we are happily DXing, our masters, the International and National authorities regulating the communication service of this nation, of which the amateur service is only a minor part, are seriously discussing the problem of allocating more and more spectrum space to the ever increasing demand from non-amateur bodies for their exclusive use.

If you have a limited amount of a commodity, and spectrum space is one such commodity, and you as a government have a total monopoly in the allocation of that commodity, then the price of the product must rise, and somebody's gain must be the other fellow's loss. Our bands are always under constant threat and you the rank and file amateur better be very busy and use the bands in ever increasing numbers, otherwise one day the axe might fall on your beloved band space.

The International Telecommunication Assembly met in Geneva from 8 to 16 November 1993. This new organisation, the successor to the Plenary Assembly of the International Consultative Radio Committee (CCIR) acts as the management body for the various study groups of ITU's radiocommunications sector. Among other things, this assembly also prepares the agenda for the future, for example for the next two World Radio Conferences (WRC). One will be held in 1995 and the other two years later in 1997. The 1995 Conference will review, amongst other agenda items, "The use of the HF bands newly allocated to broadcasting", whilst the 1997 Conference will "Examine the HF bands allocated to broadcasting." By implication there will be probably a continuing pressure on amateur bands, particularly in the area of the 13 and 23 cm bands.

Closer to home, our Spectrum Management Agency, which is part of the Department of Communications yet an independent Commonwealth statutory body, has released a discussion paper entitled "Inquiry into Radio Communications Apparatus Licence System". Do yourself a favour and ask for a free copy from the agency. Please read it and send your comments immediately to your WIA Division. There will be seminars covering this subject in every state of Australia. Try to attend them if you can.

Peter I Island — 3Y0PI

The DXpedition to this Antarctic island is now history. Landing on the island took

place on 29 January and lasted 3 hours during which the helicopter made 40 trips back and forth from the ship to the island. Some equipment was damaged in transit. After erecting the tents and antennas they went on air immediately on several bands around 2000 UTC on 1 February. The first few days produced excellent weather and about 2000 QSOs but conditions deteriorated and by 5 February snowstorms with winds up to 120 km/h made them stop operations for up to half a day.

Some of the antennas and generators were temporarily out of action. Propagation to VKZL was reasonable and most of the contacts to this part of the world were made during the first two days of the activity. Despite several solar storms and high A-Indices the expedition made approximately 6500 QSOs and operated until 16 February.

Extremely bad weather made the evacuation of the team from the island very difficult. By 18 February only two members of the team were on the Russian ship. The last ones were lifted off at the end of the day on Sunday 20 February. The ship "Akademik Fedorov" took them to Punta Arenas, Chile. From there they continued their journey by taking a flight back home. All in all this activity was a great success and congratulations are due to the members of the expedition on their achievement.

Cocos Island T19

Members of the Oklahoma DX Association and others will activate this Costa Rican Island during May. The ten days of activity will start on the second week in May. Transportation and the landing permit have been taken care of. It will be a full scale multinational effort with about 12 operators and six stations. CW and WARC bands will be the preferred operational modes.

Leading the team will be Javier AH6MM and Craig AH9B. Others in the group are V73C, AD1S, TI2JJP, XE2CQ, NH6UY, N5MIH and N0AFW. QSL to OKDXA, Box 88 Wellston, OK 74881, USA.

International Marconi Day, 23 April

The Cornish Radio Amateur Club is again sponsoring a world wide activity on Marconi's birthday. This year there is an Australian entrant for the first time. VK2IMD, a special callsign, will be activated by the Wahroonga Amateur Historical Radio Association for 24 hours

from 0001 UTC to 2359 UTC on Saturday, 23 April. The original celebration started in 1988 with only six participating stations of which all had to have some affiliation with Marconi, usually sites used in early experiments.

This year the list has grown to 29 participating stations. The event is always celebrated on the nearest Saturday to Marconi's actual birthday which was on 25 April. There will be ten stations with the GB prefix, seven with an Italian prefix, one Canadian, two with Irish prefixes and one station each from Portugal, Germany, the Republic of South Africa, Austria and Australia. Each station will have a suffix combination incorporating the letters IM, IMD, MD or similar. There is also an attractive award if you work 12 Marconi stations (see details in *Club Corner*). QSL direct with an SASE to WAHRA, PO Box 600, Wahroonga, NSW 2076 or via the Bureau.

Antarctica — VKO and Others

There are several Australian stations currently operating from Antarctica. Dave VKODE (Davis Base), Jim VKODJ (Casey Base), and Paul VKOCS (Casey Base). Please note there are no stations on Macquarie Island or Heard Island at present.

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See review in AR, July 1993

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Other active Antarctic stations are: IAOPS (Itallan, Terra Nova Bay), LUZA (Argentina, Orcades Base), AT3D (India, Martvee Base), CXOCHK (Uruguay, Cheriffe Base), ZXOECF (Brazil, Ferraz Base), DP0GVN (Germany, Neumeyer Base), OA0MP (Peru, Macchu Picchu Base), VP8HAL (British, Antarctic Halley Station), 3Y9YBA (Norwegian, Bluefield Camp, Tiero Mountains).

New Russian Callsigns

It was reported that Russia has reserved some new callsign blocks for the following areas: R1MVA — R1MVZ Malyi Vysotskij Island; R1FJA — R1FJZ Franz Josef Land; and R1ANA — R1ANZ for Antarctica. No one knows as yet when these callsigns will be put into use. Neither do we know what will happen to the 4K3 and 4K4 prefixes used by stations operating from Russian islands.

There is some confusion about the old ex-USSR callsigns and the new allocated ones. Not all the former republics have converted the old prefixes into new ones, so QSLing is a problem. It is always advisable to ask the operator what republic is he transmitting from, and note the country on the back of your QSL card under the callsign. This will help your QSL Bureau to forward the cards to the correct overseas bureau, as each republic now has a separate QSL Bureau.

Future DX Activity

- The sovereignty of Walvis Bay and Penguin Islands was transferred to Namibia on 1 March 1994. The "Sydney Morning Herald" quoted an AFP report on 2 March. "Thousands of Namibians roared with delight as the South African flag was lowered for the last time over the enclave of Walvis Bay at midnight on Monday, ending 84 years of rule by Pretoria. The ceremony marked the reintegration of Namibia's only deep water port and 12 islands with the rest of the country." The new callsign of ZS9A will be V51C. Baldu and friends (DJ6SI, DJ6JC and V51BF) were the last DXpedition to operate from Penguin Islands (from 23 to 28 February) as ZS0X.
- It was reported by OE6EEG that monk Apollo, SV2ASPIA from Mount Athos has decided to start operating again, despite the fact that he is still not happy with a previous decision by the ARRL regarding the former activity from Mt Athos of Baldu DJ6SI. Apollo is active on the 80, 15 and 20 metre bands but has very limited time for amateur activity as he is in charge of works in building a new monastery.
- Pierre FT5KJ is active on Kerguelen Island until July 1994.

- Laci HA0HW will operate from Phnom Penh as XU0HW for two weeks beginning 5 May. Laci is the QSL Manager for Sanyu XU7VK, a Hungarian national attached to the Hungarian Embassy in Cambodia. Both stations intend to be active on all bands in CW, SSB and digital modes. It is also planned that they will activate Rong Island in the Gulf of Thailand with the callsign of XU0HA. QSL for all these XU activities to PO Box 24, Puspokladany, H-4151 Hungary.
- Holger DL7VTM and friends will be active from Zambia mid-March to 6 April. Callsigns 9I2TM and 9I2LA will be used. QSL to DL7VRO.
- Mats SM7PKK and Nils SM6CAS will be active from Banaba Island T33, up to 5 April. The SSB call is T33CS and the CW call is T33CS. SSB cards to be sent to Philip Marsh, Orchard Road, Bournemouth, BH8 8SR, Dorset, UK. CW cards to be sent to Mats Persson, Zenithgatan 24 #5, S-21214, Malmö, Sweden.
- Try to work 5Z4JD before he leaves Kenya in May or June.
- Brian VP8FM is now the Base Commander at the British Antarctic Survey Base and will operate as VP8HAL or under his own call VP8CFM. He will be at the base for the next 14 months. QSL to GM4KLO.
- Look out for 9N1AA who is active from Nepal. QSL to Satish K Kharel, PO Box 4292, Kathmandu, Nepal.

Interesting QSOs and QSL Information

- 4K1F — Yuri — King George Island — 14204 — SSB — 0759 — Jan. QSL to KF2KT, Nikolai Komissarov, 1862 Woodbine St, Ridgewood, NY 11385. Note this is a new address.
- CE2CC — Joe — 7063 — SSB — 1033 — Feb. QSL to Jose Chadwick Larrain, Box 197, Vina Del Mar, Chile.
- PJ2HB — Hank — 7063 — SSB — 1113 — Feb. QSL to WA2NHA Howard Messing, 90 Nellis Drive, Wayne, NJ 07470, USA.
- YL1WW — Larry — 10105 — CW — 1055 — Feb. QSL to A B Litte, Lakstigaliga 6 37, LV-2150 Sigulda Latvia. (No radio amateur identification on envelopes).
- OY9JD — John — 14226 — SSB — 1148 — Feb. QSL to Jon Ingolvur Dam, Marknagilsnegur 26, FR-100 Torshavn — Faeroes.
- VS6WV — Mike — 7062 — SSB — 1110 — Feb. QSL to KOTLM, Thomas L Bishop, 4936 N Kansas Ave, Kansas City, MO 64119 USA.
- SV8JE — Chris — 14222 — SSB — 0650 Feb. QSL to Christos Plessas, G

- Doriza 3, GR — 28100, Argostolion, Greece.
- V73GF — Reuben — 14226 — SSB — 1149 — Feb. QSL to PO Box 446, Majuro, MH 96960 Marshall Islands.
- IY0A — Luc — 14202 — SSB — 0712 — Feb. QSL to IK0USA, Paolo De Michetti, Casella Postale 9047, I 00167, Roma, Italy.
- HK0NZL — Louis — 7085 — SSB — 1132 — Feb. QSL to Louis Albarto Escobar Potes, Box 013, San Andres, Colombia.
- T24JJ — Nob — 14196 — SSB — 0629 Feb. QSL to JR2KDN, Yuichi "YU" Yoshida, Kato Bldg, 4F 529 Rokugaik, Kita-Ku, Nagoya 462, Japan.

If you find this subsection useful, then please send me detailed band reports, as above, of your interesting DX QSOs including details of direct QSLs received (time it took to receive the reply and QSL Manager's callsign or address or op).

From Here There and Everywhere

- Gunter DK2WH who took part in the August 1993 Penguin Island DXpedition advises that all the QSL direct cards were mailed out in January from the Czech Republic due to the extremely high postal rates in Germany.
- Dave VK6DX reports good openings to the USA in the evening and to Europe in the mornings his time. He specialises in 40 metre CW contacts with homebrew equipment.
- The proposed KP5/AB4J DXpedition to Desecheo Island has been cancelled due to unauthorised presence of armed Haitians on the islands.
- The St Peter & Paul Rocks DXpedition had severe generator problems and operated most of the time with reduced power. They closed down mid February after only a few days of operations.
- The Albrothos Archipelago (IOTA SA-019) was activated in the last days of February under the callsigns PY0A and PY0B. For DXCC this will count only as Brazil. QSL to Roberto Stuckert, PT1GTI, PO Box 09647, 70001-970, Brasilia, DF, Brazil.
- According to some unconfirmed rumours the mainland Chinese amateurs are in trouble. It is said that the authorities charged them with "listening to unauthorised frequencies" There is no further substantiation of this news. Do any of our readers have more information?
- The Pitcairn Amateur Radio Club (VR6PAC) elected the following officers: Brian Young VR6BX

President, Tom Christian VR6TC Secretary, Meralda Warren VR6MW Treasurer. Incidentally, out of the 12 licensed operators 11 are locals, and out of the 11 locals 5 are YL operators and all of them QSL direct except 3 who use outside QSL Managers.

- Jon 3DA0CA is QSLing direct for contacts on 20 and 15 metres. His address is PO Box 329, Mbabane, Kingdom of Swaziland, Africa.
- Satish 9N1AA has written a letter to Hubert ZLIWG Gray VK4OH sent me a copy of that letter. Here are some interesting facts of a radio amateur's life in Nepal. "I am using a Yaesu FT757GX in combination with a 4 band vertical antenna 45 feet above the ground. I was a SWL since 1980 but I am still very new to this hobby. My total on air experience is not more than 10 hours. Previously the only active operator from Nepal was Father Marshall Moran (now a silent key) who received a licence by royal ordinance from his Majesty King Mahendra. Amateur radio was established in Nepal in 1990 after changes in the government. To pass the necessary Telecommunication laws, to design a radio amateur course and to arrange the amateur examinations has taken more than two years. With me, two other hams have passed the examination test and got their licence. Suresh Upreti 9N1HA and Ram Gurung 9N1RB. Suresh has his own station but Ram often operates from my shack. My major interest is in digital modes. I have had QSOs with more than 200 stations in 12 countries in the RTTY mode."
- Moldova ER (formerly U05), has been divided into 5 call areas, ER1 to ER5. The prefixes from ER6 to ER9 are reserved for special purposes. The ER0 prefix will be used by foreign amateurs operating in Moldova.
- The Armenian Radio Sport Federation advised the various DX outlets that the station operating on 40 and 80 metres with the callsign EK7M is a pirate.
- The licensing system has changed in Andorra C31. Andorra now has its own Constitution, is a member of the United Nations (184th member) and is also a member of ITU. Andorra is not part of the European CEPT Agreement. The C30 guest licence call has not been issued for more than 3 years. The present licensing system is using C31 (resident with all privileges on all bands), C32 (Restricted) and C33 Limited Licence. According to URA (Unio De Radioaficionados Andorrans) the following are illegal operations: C31/OZ3JK/m, C31LX, C31NP, C30EJA, and C31AZ.

- It appears that the new Russian prefix of RK identifies club stations.



Bill VR2BZ with his "DX" antenna, a total of 21 inches or 54 cm in length.

- Have you had a problem with your neighbours or with the authorities or with both of them when you put up your beam in your backyard? Did you think that life was miserable and difficult? If so, please pause for a few minutes and consider the difficulties of Bill VR2BZ. Bill is originally from South Australia but has lived and worked since 1981 in Hong Kong. Five years ago he was infected with an incurable disease called "amateur radio" which has taken over his life. He now spends a lot of time with a soldering iron in hand and fingers dancing over the keys of a computer on packet and tracking satellites. Bill has written a long letter to Gray VK4OH thanking him for a recent QSO. Here are a few interesting details from his letter. "You may be interested to know that in Hong Kong we all have major problems with antennas. As we all live in flats, we are governed by deeds of mutual covenant. One of the restrictions is that we cannot put anything outside the flat or erect anything on the roof. This is to prevent everyone putting up their own TV antenna and running a coax up the outside of the building to the roof. There are always, of course exceptions, and in the older block of flats, there is a spaghetti of coax running up the sides of the buildings and over the roof. On the roof there is a forest of grey metallic skeletons, pointed in all directions, showing their age with the rust from the very corrosive atmosphere here, and these are the TV antennas for every flat in the building. Needless to say, each new building has a communal antenna

for TV with coax feeding every flat from the inside. There are 240 flats in my building, and ten blocks surrounding us, all within 100 yards. Quite congested. One or two hams have been lucky and live in flats where either their deed doesn't specify "no antennas" or more likely when the ham asked the management if they could erect an antenna, they were refused and, after a suitable interval, they went ahead anyhow. I fit into the latter category. The antenna (or is it a coil?) I use is the Isotron which is 21 inches overall length, and it is on a short boom, 3 feet long, jutting out from the side of the building. I don't even have a balcony on which to erect it. The block of flats I live in is 30 storeys high and there are neighbouring blocks a stone's throw away. My flat is on the 25th floor, is 800 sq feet in area and the rent is AUD\$3,000 per month!!! So I am surprised to get any RF out and I am delighted to receive your QSL card."

So ends the letter from Bill. Would you want to be a DXer in Hong Kong? And we, here in VK with our towers, beams, dipoles and V-beams complain if we cannot work Peter I Island?

QSLs Received

V73GF (2W OP) — VR6CB (3M OP).

Thank You

Many thanks to the dwindling number of contributors to this column. Your help is greatly appreciated. Special thanks to VK2KAA, VK2KCP, VK2KFU, VK4CY, VK4OH, VK4XW, VK6DX, VR6CB, DK2WH, OE8EEG, and the publications QRZ DX, The DX Bulletin, DX News Sheet and the W6GQ/K6HHD list.

73 and Good DX

*PO Box 93 Dural NSW 2158

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Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

N B	HANDO	EX VK3YW
R A (Tony)	MELLORS	VK2VTM
M J (Maurice)	STREET	VK3BRJ
J F (Jock)	SPEER	VK3CJS
K J (Kevin)	DUFF	VK3CV
N M C	CAMERON	VK3NC
H (Harry)	DUGGAN	VK3XI
K V	FORD	VK4BKM
H	TEARLE	VK4HP
C L (Lloyd)	JURY	VK5TP

AR

Pounding Brass

Stephen P Smith VK2SPS*

By the time you have read this article, the 140th Anniversary of the official opening of the first telegraph link between Williamstown and Melbourne, will be over. This historic event was conducted by members of the Sydney Morsecodians Fraternity. I hope to report, and perhaps submit some photographs, on this famous event in a later issue.

Moving along, I would like to say a very special thank you to all the members of WICEN and the Bush Fire Brigades, whether amateurs or not, on a fabulous effort during the recent dreadful NSW bushfires.

On a more pleasant note, David Couch VK6WT has donated some 200 Morse keys from his collection to the "Wireless Hill Telecommunications Museum" located in the town of Melville near Perth, WA. If you ever have the opportunity to go to Perth, a visit to the museum would certainly be worthwhile as some of the attractions include, Radio and Shipping, Amateur Radio, Royal Flying Doctor Services, Telegraph and Telephone plus lots more.

The museum was opened by the town of Melville in 1979 as a contribution to the 150th anniversary of settlement of Western Australia. The site of the museum is the "Applecross Wireless Station" and is open Saturday and Sunday from 2 pm till 5 pm. Enquiries can be made through 09 3647067 or 3641558.

David has also donated his extensive collection of RAF and RAAF Morse keys to the "Aviation Museum of Western Australia". The museum is located at Bullcreek Drive, Bullcreek near Perth, and is open from 11 — 4 pm daily. For enquiries phone 09 3324444.

On the subject of museums, I hope to write a special issue on Telegraph Museums in Australia and abroad. If you have come across a museum you think may be of interest, please drop me a line.

I recently received a letter from Bruce Morris GW4XXF, of Gwynedd, Wales, in relation to the marine distress and calling frequency "500 kHz" which has been in service for about 90 years. Bruce is an Ex Marconi Marine Merchant Navy R/O, who has been recording and collecting the final close-down broadcasts of Coast Stations on the marine wireless and telegraph frequencies. As you know this is an almost sacred frequency which has been guarded since the early days of wireless, around the clock and around the world by countless ships and coast stations. Sadly the end is near for this

service due to changes in marine communications technology.

I believe Bruce to be one of the very few people, or perhaps the only one in the world, who is collecting these priceless memories. Many stations have gone "Silent Key" without making any special recordings or broadcast. Indeed, had it not been for Bruce's pestering, many more would have followed suit. On our own shores the number of stations now "Silent Key" are as follows:

From 31 January 1992, Coast Stations located at Hobart, Rockhampton, Thursday Island, Broome, Carnarvon, and Esperance have been QRT.

From 31 January 1993, Coast Stations at Adelaide closed, and Brisbane continued operating only as a commercial station during daylight hours.

Bruce Morris is doing a fantastic job in preserving part of our Wireless Telegraph history for future generations. If anyone requires further information Bruce can be contacted as follows: Mr Bruce Morris GW4XXF, 62 Gerlith, Tywynedd, LL369DE, Great Britain. Telephone 44 854 710741 — Fax 44 854 712441.

QRP Scene

Remember 17 June is designated annually by the IARU as world QRP day. Typically, power levels ranging from 5 watts output down to milliwatts, are the go. It's very exciting working DX using only 5 watts. So all you "Amp Freaks" out there give it a go, you will really be surprised and may even get hooked.

I've recently purchased from the "CW Operators QRP Club" their "Club Communicator, CW Tx for 3.5 MHz". All I will say at this stage is "fantastic". The manual is a whopping 53 pages, and is extremely detailed. I hope to submit a report on it in a later column.

News from Spain

A new QRP Club has recently been formed, the "QU_R_PE EA_QRP CLUB" (a bit of a mouthful!). Founders of the club include Miguel EA3EGV, Vicars EA3ADV and Xavier EA3GCY. Further information is available from Miguel at Pau Abad 15 30 1A, 08207 Sabadell, Barcelona, Spain.

A very handsome certificate is issued upon joining. As of this moment I have received no information about the cost of membership.

To conclude this issue, a sneak preview of future articles: Next month a close look at CW Nets, what's around. History of the straight key. Hand key restoration. Setting up your workshop, and finally QRP Hill Topping. *PO Box 361 Mons Vels NSW 2103

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Technical Correspondence

All technical correspondence from members will be considered for publication, but must be less than 300 words.

Hand-Held Problems Follow-up

I would like to correct my technical correspondence which appeared on page 58 of the February 1994 issue of *Amateur Radio* magazine. The Motorola transistor MRF237 does have the emitter connected to the case (not the collector, as stated), but the pin connections for the collector and emitter are transposed when compared with a 2SC1947. So the MRF237 is not a direct replacement on a printed circuit board.

Rod Torrington VK3TJ

4 Thistle Street
Pascoe Vale Sth VIC 3044

With reference to the above item, we also received the letter below. Ed.

More About Output Transistors

Further to Rod Torrington's (VK3TJ) letter in the February issue of *Amateur Radio*, I would like to point out that the MRF237 transistor's emitter is connected to the case, but the emitter and collector

leads are transposed relative to the 2SC1947 mentioned.

I have just fitted an MRF237 to a Yaesu 690R which had a tired 2SC1947 which would only deliver 1.5 W on FM. On SSB and AM the distortion made the audio unreadable but FM was OK. The MRF237 cured the problem.

Evidently the tired transistor would work on constant carrier but not when AM and SSB modulated.

John Ruston VK5ARK

Box 98
Renmark SA 5341

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Sign up a new member today. We need the numbers to protect our frequencies and privileges.

Over to You — Members' Opinions

All letters from members will be considered for publication, but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Takeover Rumour

I have heard a rumour that *Amateur Radio* magazine is about to be taken over and published by a private family company, owned by an amateur.

I, and all the other writers and correspondents, have, over the years, contributed to "our" magazine freely and with no thought of reward, and I would strongly object to having my time and effort used to line the pockets of someone who has his own interests in mind.

I would also object to my membership fees being diverted to a private individual or company, even if only to cover his expenses to produce the magazine. As a majority of people see the only benefit of WIA membership is receipt of *Amateur Radio* magazine, I am concerned that they will feel as I do, resign from the WIA and buy another magazine for news. Then the lack of direct communication between amateurs and their WIA will inevitably lead to the total failure of the WIA.

I recognise the pressures on the editorial volunteers to produce a quality electronics magazine. We have seen a number of good electronics magazines fail over the last twenty years or so, illustrating how hard it is to survive on a commercial basis.

Does the rumour have any substance?

Colin MacKinnon VK2DYM
52 Mills road
Glenhaven NSW 2156

(As mentioned in the Publications Committee Annual Report published elsewhere in this issue, the Federal Council set up a sub-committee some time ago, comprising Roger Harrison VK2ZRH, Neil Penfold VK6NE and Bill Wardrop VK5AWM to investigate the future direction to be taken by *Amateur Radio* magazine. A preliminary report has just been issued and makes no recommendation regarding private publication. Ed)

Remembrance Day Contest Scoring

I read with interest your article in the latest edition of *Amateur Radio* — RD CONTEST REVISITED.

I fully agree with the comment that "Perhaps we should consider re-introducing the old scoring system which allocated QSO points according to difficulty". I can see no reason as to why

this could not be used in the present contest calculation formula.

I have been involved in the RD Contest for many years but have always felt that it lost a lot of its appeal when the "one point per contact" system was introduced and tended to make stations concentrate on local VHF contacts in preference to working other States on the HF bands. It lost the "thrill" of battling through a high QRN to exchange numbers with that weak station that yielded you more points than the stronger closer stations. I have found that, during the past few years, Eastern

State stations are not so keen to work VK6 stations as it is easier to make contact with the closer stations and they are worth the same points. I don't blame them — this is all part of contest working — get as many points as you can by working the strongest stations first.

I do feel that re-introducing the "old" points system would generate a lot more interest in the RD Contest and bring a lot more stations up on the HF Bands. I wonder how many other amateurs will agree with me. Maybe we should have a quick referendum and see what the results are.

Best wishes and thanks for an interesting magazine.

L A Ball VK6AN
117 Butcher St
Bruce Rock WA 6418

Repeater Link

Will McGhie VK6UU*

FM 828-4

This is number 4 in the series of circuits for the FM 828 transceiver, and also the most difficult to produce. The power supply and switching logic is where the radio comes together and there are numerous interconnections. A considerable area for error, so if you do find any please let me know.

Interest

Judging by the phone calls and packet contacts there is considerable interest in the surplus FM 828. With 500 radios being donated by Telecom to the VK2 Division, many Amateurs will end up with one or more of these radios. Let's hope most of them end up operating on our bands. Here is some information on these radios as there are several versions.

G BAND	32 — 40 MHz
E BAND	68 — 88 MHz
B BAND	132 — 157 MHz
A BAND	146 — 175 MHz
T BAND	403 — 420 MHz
U BAND	450 — 470 MHz
W1 BAND	470 — 500 MHz
W2 BAND	500 — 520 MHz

Yes there is a G Band version. This I was not aware of until David VK3KCX rang me to let me know of the existence of the rare 32 to 40 MHz G band model. I have on order the manual and will be interested to see how much it differs from

the E band model. Manuals for all the 828 series are available from Philips and they are not expensive, at between \$20 to \$30.

The E band model can be converted to 6 metres without too much effort. More on this soon.

Both the B and A band tune on to 2 metres without any modifications.

The T and U band probably tune on to 70 cm without modification but I have not placed one of these on to 70 cm. The W1 and W2 do not tune on to 70 cm without modification. I have modified a W1 band to 70 cm and it was not easy. The radio almost receives at full sensitivity on 70 cm but not quite. The front end received tuned circuits and local oscillator need extra inductance. Unfortunately you cannot just add extra capacitance, because these tuned circuits are helical coils with no access to the hot end of the coils. There is no capacitor loading as the coils are many turns of fine wire that just end. The only capacitance is in the coil to the can surrounding the coil. The coil is tuned by a plastic dielectric tuning slug that changes the capacitance to ground by changing the amount of dielectric. Adding half a turn to these small delicate helical coils is not easy. It can be done but takes time and patience. Perhaps there is an easier way if you know please let me know.

*21 Waterloo Cr Lismurdie 6076 VK6UU/VK6BSB

February Federal Council Meeting

The Federal Council/Board met in Melbourne over the weekend of 19-20 February. As is now the usual practice, there was an informal meeting of the seven Divisions' Federal Councillors and attending alternates for an hour on the Saturday morning to plan the order of business and discuss particular items of interest.

Apart from the happy business of deciding on the winner of this year's Wilkinson Award, there were a number of major business items on a very full, 26 item, agenda. The formal sessions opened just after 1000 hrs on the Saturday and closed after 1630 on Sunday the 20th. On the Sunday morning, Councillors and Alternates met in session as a "Committee of the whole" to hear from the new Federal Secretary, Bruce Thorne, and Office Manager, Donna Reilly, as February marked the end of their probationary employment period, and to discuss a variety of issues relating to the operations of the Federal Office.

The Board heard reports from all Councillors, as well as Federal Secretary, Bruce Thorne, and Federal Office manager, Donna Reilly, who submitted written reports, as is now the policy. In addition, Federal International Regulatory coordinator, David Wardlaw VK3ADW gave a verbal report on his attendance at the seminar on "Access to the Spectrum and the New Radiocommunications Act" last November. Issues canvassed at this seminar were clear precursors to recent actions of the SMA. Papers from the seminar were copied to all Federal Councillors.

Reports were also given by the new Federal QSL Collection Curator, Ken Matchett VK3TL and Federal Historian, John Edmonds VK3AFU. The Council has adopted responsibility for what used to be the Victorian Division's QSL

Collection. Ken showed Council the type of displays he has made up, the manner of preservation and storage, and some of the truly historic cards in the collection.

Federal Historian, John Edmonds, is embarking on an oral history project, to record interviews with amateurs in an effort to preserve anecdotes and details of amateur radio history. Initially, John is focusing on the RAAF Wireless Reserve and Women in Amateur Radio.

The first report of the subcommittee considering publishing options and policy for *Amateur Radio* magazine was tabled and discussed. The lengthy report covered current practices and procedures as described by the Publications Committee, and compared these with industry practices. Eight preliminary recommendations were made in the report, which were adopted by Council. The subcommittee is to proceed with these to develop an "editorial platform" and recommendations on publishing options. Another report is due before the Federal AGM in May.

The revised draft of the Federal Articles of Association, a task under way for the past 18 months, was tabled with copies to all Councillors. This revision takes into account last year's comments and revisions from the Divisions. Further comment is to be made by Councillors before the May Federal AGM so that the complete revised Articles may be tabled and discussed then.

The 1994 International Amateur Radio Union Region III Conference, to be held in Singapore in September, was discussed at length. A draft budget was considered, revised and approved. A delegation of four people was approved, with a budget of \$12,000 (coming from International Representation reserves). Air fares and accommodation make up the major portion of costs.

The delegation to the 1991 Region III Conference in Bandung had a strength of four people, headed by the late Ron Henderson VK1RH, then Federal President. The Bandung delegation's experience showed this optimised participation of the delegation in most sessions and areas of discussion. The WIA will develop a series of papers for presentation to the Conference.

One important item the WIA delegation will put to September's Conference will be a proposal to hold the year 2000 Region III Conference in Australia. This will be the year of the Olympics in Sydney. The Conference is usually scheduled for about the same time of year as the Olympics, thus giving particular strength to Australia being that year's Conference host.

The Federal Technical Advisory Committee Chairman's report from John Martin VK3KWA, covered, among routine items, the impending loss of 100 MHz of the 13 cm band between 2300 and 2400 MHz, some necessary band plan revisions, and recommendations for submission to the SMA for a low frequency amateur band in the 190 kHz region. The latter was to be raised with the SMA by Federal during the next meeting with the SMA, which should have taken place by the time this is published.

The SMA's Inquiry into the Apparatus Licence System was discussed at length at the February meeting. Points to be made in a submission to the SMA from WIA Federal were developed and a submission will have been sent by the time this is published (see separate "WIA News" item).

The Council noted that Dr Vince McKenna VK3AOY had been appointed by the Federal Standards Coordinator to represent the WIA on the Standards Australia TE7 Committee on Non-ionising Radiation.

QSLs from the WIA Collection

Ken Matchett VK3TL* Honorary Curator WIA QSL Collection

WIA QSL Collection Becomes Federal

At the Federal Council meeting held in Melbourne on 20 February 1994, a motion was passed which transferred the WIA QSL Collection from WIA Victorian Division control to the Federal Body, which now becomes responsible for the financing and the administration of the collection.

The collection was started in 1967 by myself and became financially supported by the Victorian Division for the four years from 1967 to 1992.

By becoming a Federal Council responsibility the Collection becomes, in effect, the property of all Divisions of the WIA. It is only right that this should be so since a considerable number of QSL cards have been donated both by private WIA members and State QSL bureaux through Australia.

The Collection consists of the following representative collections:

VK Pre-war collection

VK Post war

DX

Thematic

Pictorial

Commemorative

Special Issue QSLs

Selected Pre and Post war SWL cards.

In all approximately 450,000 QSLs are in the collection, one of the largest collections in the world.

About 800 cards have been mounted on special display boards. These have been constructed so that several boards may be displayed in an upright position on trestle tables. In addition, several volumes of rare DX QSLs have been made up. There are also some displays of historical QSLs.

Club secretaries and Hamvention organisers are invited to contact me at 4 Sunrise Hill Road, Montrose, VIC 3765, or telephone (03) 728 5350 so that arrangements can be made for either intra- or interstate transportation of certain displays to both Clubs and Convention Centres.

The Federal Council seeks persons who would be willing to assist me in maintaining the Collection. At the present time we need three helpers to take care of:

1 **The Historical Collection.** This includes the pre-war collection of approximately 10,000 QSLs. It is hoped that the person would have an interest in the

history of amateur radio with particular reference to Australia.

2. **Thematic Collection.** This collection contains QSLs depicting such themes as Sport, Scouts, Aircraft, Space Exploration, YLs and XYLs, Signals, and so on.

3. **Pictorial Collection.** This is a fairly large collection of about 80,000 cards which are among the most attractive of the collection.

Spotlight on SWLing

Robin L. Harwood VK7RH*

The future of shortwave has been debated thoroughly by program planners and technical administrators with an eye to improving technology and changes in the political and financial climate. Many of the larger stations, particularly those European based operations, have been increasingly using satellite feeds, on a TV subcarrier on an existing transponder, that can be easily picked up and re-broadcast over domestic public or semi-commercial outlets. This is indeed working and many international broadcasters are reducing or axing European services via shortwave.

Now some technical and program managers are having to rethink this strategy, because they are now realising that they have no editorial control once the audio feeds leave the studio. The amount of program content is up to the owners/controllers of the rebroadcasting outlets. Although the technology does certainly exist for private listeners to intercept the satellite audio feeds, the potential audience using this method is in the hundreds compared to the millions who have access to shortwave. The economics of shortwave versus satellite is still heavily weighted to the former and will continue to do so for some time. Although it is cheaper for the broadcaster to utilise satellites than terrestrial senders, the opposite is true for the listener. Here the cost of a simple shortwave receiver is about a tenth of that of a satellite dish and complex receiving equipment and decoder.

With the majority of the world's population being in the developing world and not having the position of acquiring the more complex technology, it is apparent that the use of shortwave will be continuing at least for the next 20 to 30

years. Especially as the number of nations that have banned the private possession and use of home satellite receiving systems are increasing. Malaysia, Singapore, China, North Korea, Iran and Algeria are just some of the nations who have imposed bans, while in Indonesia, Thailand, Philippines, Taiwan and especially the Indian sub-continent, where there aren't any restrictions in place, the number of dishes pointed skyward has mushroomed.

Recently I was able to briefly meet with David Maindonald, the Australian manager for the World Radio Missionary Fellowship which has operated Radio HCJB for over 60 years. He confirms that the three powerful Gospel radio networks, who have been increasingly co-operating since 1986, see that their future is going to be on shortwave, although newer technologies are rapidly being developed. About 40 languages a year are being added annually to the combined output of HCJB, Transworld Radio and the Far Eastern Broadcasting Corporation (FEBC). New facilities are continually being added to cope with this expansion.

Also additional sites for senders are under review, especially in Africa, particularly since the Liberian civil war destroyed the site of another Gospel broadcaster in Monrovia. Another potential site could be in NW Western Australia to reach South, SE Asia and the Indian Ocean regions.

I recently received confirmation that Monitor Radio International has indeed sold their Scotts Corner, Maine site to a group called "Prophecy Countdown", an independent Adventist organisation. It is not affiliated with Adventist World Radio, which operates a network of stations in Guam, Costa Rica, Italy, Slovakia and

* 4 Sunrise Hill Road Montrose VIC 3765

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hires air time from Russian senders. "Prophecy Countdown" commenced on 17 January and is aired when WCSN in Maine is not broadcasting Monitor Radio International or the weekend religious output. I personally have not observed it yet, although I do notice that the third transmitter at Cypress Creek is scheduled to commence in September. That is presumably when WCSN will be running full time under the new owners. Rumours are also circulating that there may be further cutbacks to MRI programming in order to cut costs.

I noted in another Australian bi-monthly publication that the English Service of the "Voice of Russia" is currently being heard in Australia. Well, it's news to me as no such service exists, although there is a broadcasting organisation of that name, currently with programming exclusively in Russian. The only English programming out of Moscow is, of course, from Radio Moscow International which reportedly is operating on behalf of the "Commonwealth of Independent States". The "Voice of Russia" is the Russian external service and is separate from Radio Moscow International. At least that is what it is supposed to be in theory.

Incidentally, there is another good source for what is happening on shortwave. It is Glenn Hauser's "World of Radio" which has been around for a while. Yet it is much easier to hear now at 0900 UTC on Saturdays via KWHI in Hawaii. The frequency is 9830 kHz.

Well, that is all for this month. Until next time, the very best of 73 and good listening!

*52 Connaught Crescent, West Launceston TAS 7250
VK7RH/VK7BSS LTJ TAS.AUS.OZ

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WIA News

RSGB Sends Sympathies

Ian Stuart GM4AUP, 1994 President of the Radio Society of Great Britain (RSGB), sent a message of sympathy on behalf of the RSGB Council via the WIA Federal President, Kevin Olds VK1OK, to any WIA members who may have suffered losses in the recent fires here.

"There is no doubt that the consequences of these fires will have been devastating to the many people who saw their homes damaged or destroyed with little they could do about it," the letter said.

VHF/UHF — An Expanding World

Eric Jameson VK5LP*

All times are UTC

Bacons

Ian VK3ALZ reports on various beacons as follows: VK7RNW on 50.05675 was heard at 0930 on 2/2 at 529 thus confirming it is operational. Others confirmed by Ian are VK3RGG on 144.530, VK3RTG 144.430, VK7RNW 144.4746, VK5VF 144.451, VK5RSE 144.550, VK3RMB 432.5339, VK3RTG 432.430, VK3RAI 432.450.

Ian says VK7RNW at Lonah is audible every day with signals peaking to S9 at times. VK5VF is frequently audible and peaking to S3 around 2345. He asks where are the VK5s as frequent calling seems to raise no one, and adds *I would like to make the point that it is not much use having beacons if people don't use them. On the many occasions when VK5VF has been audible there are always several Melbourne stations calling Adelaide but the response has been negligible.*

A problem at the VK5 end is that despite there being beacons in Melbourne and Ballarat it is rare for them to be heard! Here at Meningie where I am 130 km closer than stations in Adelaide, I occasionally hear VK3RGG weakly and have yet to hear VK3RTG and that is with the use of a mast-head amplifier! VK7RNW is quite consistent, not very strong but regular. Perhaps this is because the path to VK7RNW is mainly over the sea whereas the other two beacons are over land.

It might be worth checking the radiation patterns of the VK3 beacons in case VK5 is in a null. I recall that years ago when VK3RTG first radiated I heard the beacon twice only in about ten years so there seems a problem hearing Melbourne beacons even during enhanced conditions. Perhaps VK5VF is sited better — it is enormously powerful here.

Ian says there are many Melbourne stations active on 1296 MHz and during the Ross Hull Contest he averaged six contacts per day including VK3XRS over a 230 km mountainous path. VK7DC is S9+ in Melbourne when conditions are reasonable. No contacts were made on 2304 MHz. Ian is able to place a temporary beacon on 2304.080 MHz for anyone requiring such a service.

Two metres and above

Although VK5 missed out on its customary four days of enhanced conditions across the Great Australian

Bight to Albany around the end of January, there has been some activity.

Trevor VK5NC at Mount Gambier said that 13/1 provided good signals on 144 and 432 MHz around 1045 when he worked VK7XR and VK7KAP on both bands and VK7DC on 144. Also contacts to VK3XRS, VK3CY, VK3KWA, VK3EUC, VK3II, VK5NY and VK5AKK on 144. On 31/1 the band opened to Esperance when at 1036 Trevor worked VK8AS on 144 with signals so strong that they were able to reduce the power to one watt and maintain contact. At 1047 VK8APZ was worked on 144 and 432. On 5/2 he worked a number of VK3s and VK5RN on 144.

From the January 1994 issue of Japan's CQ ham radio magazine (courtesy Graham VK6RO) comes a list of JA beacons: 50.01022 JA2IGY, 50.012 JD1ADP, 50.017 JA6YBR, 50.02701 JA7ZMA, 50.04397 JR6YAG, 50.059 JH02PI, 50.480 JH8ZND, 50.48980 JG1ZGW. Other Pacific area beacons include 50.00811 DX1HB, 50.019 P29BPL, 50.043 ZL3MHF, 50.062 KH6HE, 50.064 KH6HI, 50.07469 VS6JX, 50.076 KL7GLK, 50.084 3D2FJ, 51.022 ZL1UHF, 51.029 ZL2MHB, 52.510 ZL2MHF.

Switzerland

Dan HB9CRQ is seeking 144 MHz EME contacts with Australia and has already worked VK5MC, VK3AMZ, VK3AUU, VK2FLR and VK2DVZ. He has worked 94 DXCC out of 578 grids in more than 1800 EME QSOs with 803 different stations. His grid square is JN47CI.

Dan's equipment is: Antenna — 8x19 xxx by M² yagis, 7/8" low loss phasing harness, 0.3 dB nF GaAs-FET pre-amp by K13W Receiver: Icom IC 781 + SS8-Electronics converter with filters IF 250 Hz and audio 100 Hz. Transmitter: FT-726FR to Mirage B1016 to 8877 (by HB9SV) with an output of 2.5 kW.

Dan has worked many single yagi stations with the smallest being W2RS running 150 watts to a single 19 element. He says any station using one yagi or more and about 200 watts of CW is a potential partner for a 144 MHz EME QSO. He hopes the publishing of this information may encourage further EME activity from Australia.

Dan has PC software which calculates EME windows so he is able to suggest possible sked times. He is usually QRV on EME activity weekends and operating random around 144.015 MHz. His phone number is 41-64-715544 or Fax

41-64-702104. Postal address: Dan Gautschi, PO Box 12, CH-5737 Mensiken, Switzerland..... Who wants an EME contact?

EME News

Doug VK3UM writes very enthusiastically about his 432 MHz EME contacts on 28/1 and 29/1 when he said *It's been years since I can remember signals as good. There was some slow QSB but no libration and good alignment down to about 10 degrees. I was consistently hearing my echoes above the noise with 60 watts at the feed and at 120 Hz bandwidth.*

28/1: 1900 OK1CA 559 339, 1941 G0BP 449 449, 1945 DL9KR 589 579, 29/1: 1930 15CTE 0 0, 1958 IK1HWD 459 449, 2000 EA3DXU 0 339, 2025 UT5EC 549 459, 2037 15MPK 559 559 plus SS8 54 45, 2100 IW5AVM 0 359 and 0 449.

Sporadic-E on 432 MHz?

Last month I wrote about the large two metre Es opening between 0110 and 0130 on 9/1/94 when VK3.5 and 7 were working Brisbane stations. A suggestion that skip had shortened on 432 MHz brought a scramble to that band with VK3UM well amongst it.

I have received a letter from Doug VK3UM which clarifies the situation in regard to the happenings on that day. If you are a serious VHFer then I think the following description could benefit you.

About 0100 Doug received a phone call from Arie VK3AMZ who advised that the two metre band was open to Brisbane. Doug checked the band and although signals were S9 plus there were deep fades and short period "drop outs" which indicated the band was not "solid" and "steady" which we know it can be at times. However, he advised the Brisbane gang that he would transmit on 70 cms.

He used his EME station with all its facilities for measuring noise from any ionised reflection medium, including aurora. As Doug can read down to 0.5° both azimuth and elevation absolute and knowing the exact system gain and noise temperature, he went hunting for noise.

It did not take him long to find it. Initially the noise peaked at 31° Az and 3° El at levels between +4 <—> 7 dB above ground temperature. Translated to cold sky it meant (+5.3) 9.5 <—> 12.3 dB above 15°K which was quite a racket by his system standards.

He tracked the noise for about 45 minutes during which time it moved as far north as 21° and east 38°. In elevation it peaked at one stage to 8° which is some distance south. At best the "cloud" was about 10° wide at the 3 dB points and for a period he was able to discern two

"clouds" some 3° wide. The level varied as indicated both in short and long term rates. At one point it "cut" and he found it again some 15° away.

Doug regrets not graphically plotting the occurrence on his computer system to give a hard copy disk record, but in the heat of the moment I suppose one can be forgiven for overlooking some things!

Doug transmitted and immediately received a response. The signal was very weak and masked by the "sky noise." He found that if he was on the edge of the "cloud" then he had a better s/n ratio. Regardless of this he was unable to extract a callsign despite hearing his own call sign many times during the 15-20 minutes of operating. Doug asked the other operator to try CW but no, asked him to call on six or two kHz but no. The local boys and VK3AMZ helped where they could but to no avail.

Who it was Doug has no idea. He has since proven that it was no one in VK1 or Brisbane (VK4) or VK3. The station responded each time Doug put it over but so far no letter, phone call or any communication. Strange.

Doug says *This form of Es cloud (that day) does produce noise and this I have verified. Not as much as I have heard on 70 cms from aurora but it is quite significant and on my system you can't miss it. Just what the absorption/reflection co-efficient is who knows (yet). How much scatter, how the reflection angle is affected we are still to discover.*

You (VK5LP) will recall that it was in the late 1950s and early 1960s when we first

found that with solid six metre signals it did not mean the same on two metres where the path was generally shorter, ie the path existed to a different place than that which you expected at the time. I suspect that 70 cm is similar. Who knows? The trouble is that such conditions happen all too infrequently and there are not enough 70 cm stations in the right spot.

Over the past few years whilst attending International EME Conferences I have had long discussions with the Europeans, State-Siders and Canadians etc but not one knows of a single 70 cm Es QSO! Not one! 70 cm aurora has been done many times, rather commonplace but with a fair degree of difficulty. It is these guys whom I expected would do it but no. True, most live, by Australian standards, a lot further north relatively than we do and Es on two metres is not as common as in VK.

Es on 70 cm poses a great opportunity for some serious amateur radio research. It may be possible, even easy, but I suspect not. It may not be anything like two metres — if it was then someone somewhere would have done it years ago.

I suspect that a scatter medium may be more likely as the reflection/absorption coefficient may be too high for 70 cm. I feel that it will need considerable grunt, good ears (though getting into or matching the received noise level won't require something ultra flash) and a lot of bird perch! Time may tell? Very interesting Doug...5LP.

Doug also noted the attempts by various amateurs to work VE3ONT last year. He said the signals were 58/57 and



The EME array of HB9CRQ.

Chris VK5MC told him of similar signals on 23 cm. Doug heard VE3ONT on two metres at a little stronger than Dave W5UN's normal signal. Could be worked easily with 200 watts and a single yagi. On 70 cm VE3ONT was audible -1° below the horizon and their QSO was over in less than one minute! He said they were brilliant operators and a pleasure to listen to the way they handled the dogpile.

Doug suggests that if operators want to be serious about EME then they must do a lot of work on their receiving systems otherwise signals are always going to be marginal and many calls will be missed.

Finally, after doing his sums, Doug concurs with Gordon VK2ZAB's conclusion re Lord Howe Island acting as a passive reflector for the two metre signals into New Zealand. These were the subject of a report in last month's *Amateur Radio* when I also agreed with the finding.

Six metre snippets

John VK4PU says there have been the usual Es contacts to VK1, 2, 3, 5, 6 and 7 plus ZL, FK8 and a few JAs. The VK7RNV beacon is very strong. He will be erecting a new tower soon for VHF and UHF antennas.

Clarrie VK5KL worked P29CW on CW at 0806 on 8/12/93 but has had no JA openings during the summer.

Lance VK4ZAZ writes *As predicted, there were many lively six metre openings with Es extending to two metres. The tropo to NZ in January on 144 and 432 MHz was reminiscent of a similar set of conditions in October 1988 when it was possible to access NZ 432 repeaters using ten watts. It seems this time conditions extended further north into VK4 — maybe it did then but there was no one around. There is certainly a lot more activity at present on those bands than a few years ago.*

Although most of the DX-hunters have ceased operating, there is still evidence of F2 being available. Through January and February there were a number of days when the frequencies below 50 MHz were full of signals, including TV carriers from Europe. So much so that on 17/2 at 1100 Steve VK3OT worked a station in Central Russia on 50 MHz. There seems little doubt more stations could have been worked had they been operating but with most of Europe closed down opportunities have receded.

The November 1993 issue of *FIVE NINE* from Japan (courtesy John VK4PU) carries an extensive list of six metre beacons operating on all six continents. From the February 1994 issue of the same magazine is a list of the top 20 six metre DXCC Standings. Of these JA4MBM heads the list with 156 countries, followed by JA1BK 150, JE1BMJ 140, JA1VOK 135 and on down to the 20th station JA1ELY

with 114. In the top 20 there are eight from JA1 and seven from JA2.

News from Europe

Ted Collins G4UPS in his January report advises that Mike ZD8M (G3UOF) confirms the ZD8VHF beacon on 50.0325 is still operational. From Ascension Island Mike has worked KP4EOR, YV4AD, CT3FQ and several TP/TPY stations.

Mike believes the regular paths to these areas are the result of ducting. Ted says that when he was ZD8TC he had mentioned many times in his log that such contacts were due to ducting. It may be interesting to also note that Ascension Island is about 8° south of the equator while Venezuela is about the same distance above the equator.

(I remember reading somewhere of the occurrence of atmospheric ducting in the South Atlantic Ocean around 50 MHz and even more so in the Indian Ocean where their results were first noticed on the radar screens of warships during World War II. However, ducting does occur more often on frequencies of 144 MHz and higher.VK5LP.)

Looking at Ted's January report I am amazed at the way six metre stations in Europe have disappeared. Contacts heard included: 9A3, DL3, IK2, IN3, OE6, OY9, OZ2, OZ3, S51, S53, S55, S56, S59, SM3, SM6, SM7, YU1 being 17 prefixes in 9 countries. Of course there were various contacts throughout Great Britain and his regular skeds with G3CCH and SM7AED. Ted must be building a veritable dossier on his contacts with SM7AED.

Geoff GJ4ICD reports that the DX-pedition to Jordan will go ahead as planned with G0JHC and GJ4ICD flying out on 28/5 to set up the equipment. They will operate from 160 to 10 metres plus 100 watts on 50 and 144 MHz with no skeds. The call to look for on 50 MHz will be the JY7SIX beacon on 50.075. We wish them well and despite the time of the year I am sure there will be some VK operators looking for them.

From the US

If you can lay your hands on a copy of QST for March 1994 then I suggest you read *The World Above 50 MHz* by Emil Pocock W3EP who presents more than a page under the heading "How's Your Horizon." It looks at the effect that nearby and more distant hills can have on what would generally be considered prime hill-top VHF sites. Roger VK5NY, Gordon VK2ZAB and Wally VK4DO might ponder the consequences of the three included equations as they sip tea at their mountain retreats!

Todd Emalie from Ryde, Sydney, reports his observations of TV/FM DX

during December and January. His information is indicative of what can be heard or seen if you are prepared to seek it out and the results can be used to promote contacts on 50 and 144 MHz.

Multi-hop Es was observed on several days with the following highlights noted: 8/12: Western Australian 6ABC FM 93.3 MHz Bunbury, 97.7 Perth, 98.9 York. Northern Territory: FM 96.9 85UN, 100.5 8KIN, 10/12: Chinese video Ch C1 49.75 Ch2 57.75, audio on 56.25, WA FM 6ABC 94.5 Albany.

4/1: KVZK Ch A2 American Samoa 55.2474 and audio 59.7474, FM 96 95.4 English Service, Noutarang 97.4 Hindi Service, FM from Lautoka, Fiji, 16/1: KVZK A2 and unidentified Ch A3 video 61.2492 from the Pacific (? Hawaii), 17/1: KSBS 92.1 Pago Pago, American Samoa, KVZK A2, 95.4/97.4 Fiji FM, 6ABC 93.3 Bunbury.

Todd said all FM DX was monitored with an ONKYO T-9090 II digital FM tuner connected to two 8 element yagis vertical/horizontal. KVZK Ch 2 A2 American Samoa was noted on several days using an Icom R7000 receiver and its video carrier was measured at 55.2474 with 0 KHz beat SSB. He has found that signals are easier to detect if you tune below the main carrier to hear the side-band heterodyne which for KVZK is approximately -700 Hz which corresponds to 55.2467 MHz. KVZK vision carrier is a good early warning indicator for multihop openings to the Pacific area.

Todd is interested in exchanging TV/FM/8m/2m DX logging details with amateurs and others and can be contacted at 13 Warren Street, Ryde, Sydney, 2112. Thanks for your information Todd VK5LP.

Closure

By the time you read these columns we will be in the middle of the autumn equinox. Don't put away your six metre equipment — there is still some F2 propagation out there.

Thank you to the many operators observed during the Es summer period who immediately moved from 50.110 after establishing a contact. Such consideration will eventually be noticed by the few who remain on the international call frequency.

Closing with two thoughts for the month:

1. One of the tests of leadership is the ability to recognize a problem before it becomes an emergency, and
2. The degree of one's emotion varies inversely with one's knowledge of the facts — the less you know the hotter you get!

73 from The Voice by the Lake.

*PO Box 169 Meningie, South Australia 5264

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SMA Inquiry

A submission developed by WIA Federal has been put to the Spectrum Management Agency following a call for submissions in the SMA's discussion paper on their "Inquiry into the Apparatus Licence System."

The SMA held a series of information seminars on the subject around Australia over February and early March. What they had to say was the subject of a lengthy report in last month's WIA News.

In the submission, concerns were raised that the licence categories to be used by the SMA should be in agreement with those specified by the International Telecommunications Union (ITU).

The ITU Radio Regulations defines the Amateur Service as *"A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest."*

Additionally, the ITU defines the Amateur-Satellite Service as *"A radiocommunication service using space stations on Earth satellites for the same purposes as those of the amateur service."*

The submission attached importance to these definitions being adhered to throughout any discussions or proposed changes being carried out within Australia, "...whatever other aspects of licensing of amateur radio operators may be under consideration."

The submission argued that, because bands allocated to the Amateur Service are defined by international agreement and are used worldwide, they cannot be considered as a "marketable resource" within Australia.

Non-amateur users of the HF bands, the submission pointed out, would encounter considerable interference from overseas amateurs legitimately using the HF bands. In addition, it was argued, all of the UHF amateur bands are already allocated on a shared basis, and as far as amateurs are concerned, are not suitable for commercial exploitation. The same applies to many of the amateur microwave bands, it was argued.

In shared bands which come under commercial pressure, the SMA has been silent on the fate of the dispossessed users where such sharing is diminished, the submission pointed out.

The WIA submission put it to the SMA that a policy would be welcomed that saw: no service deprived of access to bands which are allocated to it under ITU agreements; no shared bands offered in entirety for price-based allocation; when shared bands are earmarked for price-based allocation, portion or portions are withheld so that all services may have some access; where services are deprived of spectrum space by price-based allocations, they are compensated by receiving primary or exclusive status in the portion of the band left for them.

The submission pointed out that approaches have already been made to the SMA to consider licence terms of more than one year (eg 5 years), a licence for short-term visitors and payment by credit card or EFT and payment through agencies acting for the SMA.

On the subject of considering the Amateur Service for Class Licensing, the submission pointed out that an amateur licence is an operator's licence, not an apparatus licence and that, owing to the experimental nature of the Amateur Service, amateur equipment is not subject to standards or type approval.

It was argued that it would be

difficult to apply Class Licensing to the Amateur Service while still observing the ITU criteria and maintaining an adequate level of regulatory activity.

WIA Federal's submission also covered the social value of the Amateur Service. This includes aspects of self-training and research which contribute to the good of society in general, proficiency in providing communications in local or national emergencies, and contributing to international understanding, knowledge, goodwill and welfare through the ability to communicate worldwide.

The SMA was urged to consider the objective basis of such social benefits when considering frequency allocations and licence fees.

The matter of interference to the internationally allocated 8 m and 2 m amateur bands from non-standard VHF TV channels was raised in the submission. Full access to the 50-54 MHz band allocated by the ITU regulations has long been denied Australian amateurs. It was pointed out that the Australian Broadcasting Authority is permitting emissions from TV stations to fall outside the bands allocated to them. Such matters should be considered in the Apparatus Licence System review, the submission urged.

Finally, the WIA submission expressed concern that, regardless of any final decisions, there was a need for the SMA to maintain its position as the overall regulatory body to ensure that all users operate within the terms of their licences and to investigate reports of misuse or interference.

In addition, where the equipment was licensed, rather than the user, the equipment should conform to specified technical standards and be unable to be modified to operate outside the bands for which it is designated to be used.

HF PREDICTIONS

Evan Jarman VK3ANI*

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μ V (dBu) at the MUF, the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μ V in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μ V at the receiver's input and the S-meter scale is 6 dB per S-point.

μ V	50 ohms	S-points	dB(μ V)
50.00	S9	34	
25.00	S8	28	
12.50	S7	22	
6.25	S6	16	
3.12	S5	10	
1.56	S4	4	

0.78	S3	2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 34.1. The predicted value for May is 32.2.

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	19.4	15	16.1	23	18	11	-1	-15
2	19.8	16	16.8	24	19	12	0	-13
3	19.8	16	16.8	25	20	12	0	-13
4	18.7	17	16.4	27	21	13	1	-13
5	19.5	18	15.9	29	22	13	0	-15
6	18.7	21	15.0	33	23	12	-3	-19
7	18.9	24	13.4	33	19	6	-11	-31
8	15.0	26	11.9	30	14	-12	-38	-
9	13.4	28	10.8	24	4	-14	-	-
10	12.2	29	8.6	19	-4	-26	-	-
11	11.3	30	8.5	14	-12	-38	-	-
12	10.6	31	8.4	10	-19	-	-	-
13	10.1	32	8.0	8	-24	-	-	-
14	9.8	32	7.7	3	-29	-	-	-
15	9.2	32	7.2	0	-32	-	-	-
16	9.1	34	7.0	0	-36	-	-	-
17	8.8	34	6.8	-4	-	-	-	-
18	8.5	34	6.5	-9	-	-	-	-
19	7.7	34	6.1	-14	-	-	-	-
20	10.3	23	7.8	5	-20	-	-	-
21	13.2	19	10.1	16	0	-16	-	-
22	15.9	17	12.4	21	11	-1	-18	-38
23	17.8	16	14.2	22	15	8	-8	-24
24	18.7	16	15.2	23	17	8	-8	-19

VK WEST — SOUTH PACIFIC

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	22.9	12	18.8	17	18	15	8	0
2	22.7	12	18.7	17	18	15	8	0
3	24.2	12	18.2	18	20	17	11	3
4	24.3	13	20.3	20	21	18	11	3
5	24.2	14	20.2	21	22	19	13	3
6	23.6	15	19.3	23	23	21	13	3
7	22.2	18	17.7	33	28	21	11	0
8	20.0	21	15.8	36	27	18	5	-8
9	17.7	24	14.1	32	22	12	-2	-19
10	15.8	26	12.5	31	18	5	-13	-33
11	14.2	28	11.2	28	12	-2	-23	-
12	13.5	29	10.5	25	9	-7	-30	-
13	13.2	30	10.2	21	5	-12	-36	-
14	12.2	30	9.8	22	2	-16	-	-
15	11.8	31	9.3	20	0	-20	-	-
16	11.5	31	9.0	18	-3	-22	-	-
17	10.8	33	8.3	17	-6	-27	-	-
18	10.6	33	8.1	15	-8	-31	-	-
19	10.3	32	7.8	13	-11	-35	-	-
20	10.6	34	8.0	14	-8	-32	-	-
21	12.7	20	10.0	16	2	-12	-34	-
22	16.2	16	12.4	19	12	3	-11	-27
23	19.6	14	15.3	19	17	11	1	-10
24	21.9	12	17.4	18	18	14	8	-3

VK EAST — AFRICA

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	11.2	12	8.2	8	-6	-21	-	-
2	10.7	12	8.0	7	-7	-23	-	-
3	10.2	0	7.8	5	-7	-20	-	-
4	13.0	3	9.9	4	1	-7	-21	-37
5	13.0	7	13.9	4	7	4	-3	-13
6	20.9	7	15.9	6	7	1	-7	-
7	21.0	7	15.7	3	9	7	2	-6
8	19.8	8	15.6	8	9	8	0	-10
9	17.8	9	14.0	8	8	4	-2	-16
10	16.6	9	12.5	10	7	0	-11	-20
11	14.0	11	11.1	11	4	-5	-20	-28
12	12.7	13	10.0	11	1	-11	-29	-
13	11.9	17	9.4	12	-1	-16	-38	-
14	11.3	22	8.9	13	-4	-21	-	-
15	10.9	26	8.6	13	-6	-26	-	-
16	10.7	28	8.3	13	-8	-29	-	-
17	10.4	30	7.7	12	-10	-32	-	-
18	10.0	31	7.3	10	-14	-37	-	-
19	9.5	31	7.0	8	-18	-	-	-
20	9.8	31	6.6	10	-15	-36	-	-
21	9.8	30	6.7	8	-17	-	-	-
22	9.4	27	6.6	6	-20	-	-	-
23	9.1	20	6.5	2	-21	-	-	-
24	8.6	14	6.9	4	-18	-36	-	-

VK SOUTH — AFRICA

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	11.2	19	8.1	13	-6	-20	-	-
2	10.7	18	8.3	9	-4	-18	-	-
3	13.8	14	10.9	13	5	-4	-20	-36
4	18.9	13	14.6	14	13	9	0	-10
5	21.2	10	16.7	10	13	0	3	-6
6	21.9	9	15.9	6	12	10	4	-6
7	21.4	9	15.5	7	11	9	3	-6
8	20.0	9	14.7	8	11	8	1	-7
9	18.3	10	13.7	10	11	7	-1	-12
10	17.6	11	12.3	12	10	4	-6	-18
11	15.8	12	11.0	19	8	0	-13	-29
12	14.1	14	9.8	14	5	-6	-22	-
13	12.7	17	8.6	14	0	-14	-35	-
14	11.7	21	8.1	13	-4	-21	-	-
15	11.1	25	7.6	12	-8	-28	-	-
16	10.6	27	7.2	11	-12	-34	-	-
17	10.1	29	7.0	9	-16	-38	-	-
18	9.5	30	6.9	7	-19	-	-	-
19	8.5	30	6.8	5	-22	-	-	-
20	8.4	30	6.7	4	-24	-	-	-
21	10.0	30	7.2	8	-17	-	-	-
22	9.9	30	7.0	8	-16	-	-	-
23	9.8	27	6.9	6	-19	-	-	-
24	10.2	22	7.4	8	-13	-34	-	-

VK WEST — AFRICA

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	10.2	25	7.7	9	-12	-33	-	-
2	10.2	25	7.7	9	-12	-33	-	-
3	13.2	15	10.4	14	4	-7	-25	-
4	18.3	13	14.2	18	14	8	-2	-4
5	21.1	11	16.3	12	11	11	4	-4
6	21.6	10	15.5	10	10	13	11	-4
7	22.5	9	16.6	9	13	11	8	-3
8	22.1	9	16.1	8	12	10	4	-3
9	21.4	9	15.2	7	11	9	3	-4
10	19.8	10	15.5	12	12	8	0	-10
11	17.9	12	15.2	15	12	5	-5	-18
12	16.0	15	12.2	17	10	1	-13	-29
13	14.1	18	11.2	18	8	-5	-24	-
14	12.7	22	10.1	18	2	-13	-36	-
15	12.0	26	9.5	17	-1	-19	-	-
16	11.4	29	8.9	15	-5	-25	-	-
17	10.8	31	8.4	12	-9	-31	-	-
18	10.7	30	8.4	14	-9	-32	-	-
19	10.5	31	8.2	13	-11	-34	-	-
20	10.1	31	7.8	10	-15	-39	-	-
21	9.6	32	7.3	7	-20	-	-	-
22	9.9	31	7.5	9	-18	-	-	-
23	10.1	31	8.3	14	-8	-30	-	-
24	10.0	30	7.7	10	-14	-38	-	-

VK EAST — ASIA

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	26.3	19	21.7	17	21	20	15	9
2	27.3	13	20.9	16	21	20	17	11
3	28.1	13	21.6	16	21	21	18	12
4	28.6	13	23.6	16	22	22	19	13
5	28.5	14	23.4	18	23	22	19	14
6	27.8	14	22.6	21	24	23	19	13
7	26.3	15	21.2	25	26	23	18	10
8	24.2	17	20.3	32	28	22	15	-6
9	22.1	20	17.6	38	30	23	12	0
10	19.9	21	15.9	37	27	17	4	-10
11	16.2	22	14.5	35	23	11	-4	-21
12	17.3	23	13.6	34	20	8	-9	-28
13	15.6	24	13.1	32	17	4	-14	-35
14	15.6	24	12.7	30	14	0	-20	-
15	15.1	24	11.9	29	11	-4	-22	-
16	14.6	25	11.4	26	8	-8	-32	-
17	13.3	26	10.4	21	0	-19	-	-
18	11.4	27	8.9	11	-15	-	-	-
19	10.8	27	8.3	7	-18	-	-	-
20	11.5	27	8.8	12	-14	-39	-	-
21	19.8	21	12.6	27	13	0	19	-
22	25.2	16	18.2	27	25	20	12	7
23	27.7	14	19.8	22	30	14	6	8
24	23.3	13	20.6	19	21	18	14	7

VK SOUTH — ASIA

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	24.0	11	17.0	12	14	11	3	-6
2	23.5	11	17.0	11	14	11	5	-3
3	22.1	11	16.7	10	14	12	8	-1
4	22.2	11	16.5	11	15	12	9	-1
5	21.2	12	16.3	12	15	13	7	-1
6	21.9	12	17.9	15	16	13	7	-1
7	21.9	13	17.0	15	16	13	5	-1
8	19.5	16	15.7	29	18	12	1	-11
9	17.7	20	14.1	30	19	8	-7	-24
10	17.7	20	14.1	30	19	8	-7	-24
11	14.0	20	11.3	22	13	13	-30	-
12	12.7	24	10.1	17	4	-17	-	-
13	12.0	25	8.5	13	17	-36	-	-
14	11.5	25	9	10	-	-	-	-
15	11.1	25	8.8	7	-21	-	-	-
16	10.9	25	8.5	-1	-34	-	-	-
17	10.7	26	7.8	-	-27	-	-	-
18	10.1	26	7.8	-1	-34	-	-	-
19	9.4	26	7.2	-8	-	-	-	-
20	9.5	26	7.2	-8	-	-	-	-
21	11.5	26	7.7	10	-17	-	-	-
22	15.0	14	11.5	16	5	7	-25	-5
23	18.1	12	14.2	16	12	8	-5	-10
24	12	12	12	12	12	12	12	12

HAMADS

TRADE ADS

● **AMIDON FERROMAGNETIC CORES.** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boonyo Ave Kiama) Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albany; Assoc TV Services, Hobart; Truscotts Electronic World, Melbourne

● **WEATHER FAX** programs for IBM XT/ATs *** "RADFAX2" \$35-00, is a high resolution shortwave weatherfax, morse and RTTY receiving program Suitable for CGA, EGA, VGA and Hercules cards (state which) Needs SSB HF radio and RADFAX decoder *** "SATFAX" \$45-00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver *** "MAXISAT" \$75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.8 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" d.sks (state which) plus documentation, add \$3-00 postage. ONLY from M Delahunt, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

● **THE WORLD OF HAM** radio compact disc, over 7000 files of amateur software, thousands of short wave frequencies, over 1000 radio modification files \$79.95 plus post \$6.00 for IBM compatibles. W. Kessler, 3 Howard Ave, Ormond Vic 3204, (03) 578 4825.

FOR SALE NSW

● **MFJ 1224** computer interface C64 software and handbook \$150. Ray VK2FW QTHR (063) 65 3410.

● **B & W** dummy load wattmeter oil cooled ranges 0-10, 100-300-1000W, 52 Ω good condn \$200. Gordon VK2AW QTHR (02) 580 4325.

● **ESTATE OF VK2EEK** KENWOOD TS350S \$600; AT230 \$120, MC500 \$30; KENPRO squeeze key \$100. Ian VK2MW (02) 44 9885.

● **TOWER** free standing made in USA triangular made of aluminium in two sections each 12ft long never used, top plate suitable for rotor or vertical antenna \$120. Ken VK2CWI (044) 76 1805.

FOR SALE VIC

● **KENWOOD TS-811A** and **KENWOOD TS-711A** 70 cm and 2 m all mode xcvrs 25 watts output and built in 240 V p/supply both in excellent condition, no faults \$1,100 each. Andy VK3DJO (053) 82 1439 BH (053) 82 1759 AH.

● **YAESU FT1012D** (no WARC bands) s/n 9F060399 mic & external SWR meter inc. good cond \$525. Ray VK3RU QTHR (03) 889 5762.

● **IBM XT turbo 20 meg hard disc colour monitor key board** \$250. Jim VK3YJ QTHR (03) 3117 10007

● **ESTATE OF VK3NC** ICOM IC735 transceiver \$1,000; MATCHING power supply P855 \$250; YAESU FF501 \$250; BENCHER paddle keyer \$40; DICK Smith solder station \$50. Alistair (03) 3499 8000

● **ICOM IC-28A** 2 m FM xcvr 25/5 W 21 memory channels highly visible LCD readout c/w all leads mks inst manual carton as new hardly used \$450. Alf VK3EJ QTHR (03) 877 2983.

● **YAESU FT-ONE** g/cv receiver, plus brand new extender boards 140 watt transmitter all filters installed 12 V 240 V plus microphone FM board ec \$1,500. Patrick VK3GEE (051) 99 2811.

● **DECEASED ESTATE OF Dick Fitzsimmons** Ex-VK3RZ. KENWOOD TS-440SAT HF xcvr vgc \$1,700; KENWOOD MC-800 desk mic \$70; ICOM PS-15 power supply \$100; YAESU FT-290R 2 metre all mode xcvr \$350. Mike VK3RZ (018) 39 7565.

● **ICOM 751A** and workshop manual, low air time, \$1200. A/CRAFT SKYPHONE ANA \$120. Ron (03) 707 3405.

FOR SALE QLD

● **VALVES** for restorers, collectors, some unused in cartons. Octals, novels, metals, military. All tested. Sockets, ceramics, shields, all types. Send 9" x 4" ass for latest list, reas prices. Ted VK4YG PO Box 245, Ravenshoe Qld 4872, (070) 97 6367.

● **MOSLEY** 4 band trapped HF vertical antenna with data sheets \$75; SHURE model 450 desk microphone with data sheet \$75; WAVE meter ex Dept of Defence gc \$40; EDDYSTONE 750 receiver, gwo with circuit diagram, data sheet \$120; DRAKE C-line valves (2) 6J8BA \$60; MULTITESTER Samwa N-501 (top of the range) 17 μ A FSD. 10 A ac/dc etc \$95; FUNCTION generator home brewed gwo \$35; YAESU SP-980 external speaker w/filters \$70; WHIP Antennas 80 m w/adjustable tip \$35, 10 m \$25. John VK4SZ (070) 61 3286.

● **YAESU FIF-232C** computer aided transceiver (CAT) interface, c/w din lead & RS232 cable vgc \$50; HIGH Power valves, 7 x 813s, 6 x ceramic 813 sockets, top caps. Filament x/mrs to suit 813 — 2 with 10 V AC CT & 1 with 2 x 10 V AC CT & a 6.3 V AC CT \$50 the lot. Gary VK4AR QTHR (07) 353 1695.

● **TELEREADER CWR685** c/wbaudot ASCII with keyboard, manual good cond \$250 or near offer; DSE computer program data recorder CATX 7206 \$40. Gordon VK4KAL QTHR (079) 85 4168.

● **YAESU FRG-9600** VHF/UHF receiver w/operating manual vgc cond \$300; RS2100 RTTY scope HAM g/cvnd w/manuals \$100; ANTENNA multi-band vertical (W Wulf) 10-80 m 2 years old g/cvnd \$150. Dick VK4KEZ QTHR (07) 264 1655.

● **REFLECTOMETER**, SWR 50 MHz — 3.8 GHz, 50 Ω , machined heavy brass. Silvered N-type connectors. Schottky diode-chip components. Single diode system. No swapping of connectors. \$150 Keith Searle VK4ZKS MSI 1877 Malanda QLD 4885 (070) 966 149.

FOR SALE TAS

● **ONE** 3 m length of 20 mm square alum tubing and four 2 m lengths of alum tubing 12 mm outside diam. \$15 the lot. Prefer local buyer. Frank VK7LO QTHR (004) 24 6672.

WANTED ACT

● **CIRCUITS** copy of handbook, other information for a Datong automatic RF speech processor. Richard VK1RJ (06) 258 1228.

WANTED NSW

● **RAAF** Radar units part of ASV equipment — transmitter AT300, receiver AR301 — cases only of interest if undamaged. A Gray, VK2IJ, PO Box 353, Whale Beach NSW 2107.

● **HEWLETT PACKARD** technical manuals for models 8410A, 8413A, 8414, 1430C, 1411A, 3440A, 3430A, 5261A, 8898A, 5264A, 5263B, 525A, electronic test equipment. Peter VK2CPK QTHR (02) 605 4790.

● **FR101** Receiver any condition; FV101B ext VFO valves IT4 IS4 SP10PB landliner. Ray VK2FW QTHR (063) 65 3410.

WANTED VIC

● **YAESU FV101** extension VFO in good condition, YAESU YD844 desk mike. Andrew VK3WAB QTHR (03) 544 2758.

● **WANTED** Dead or Alive b/w video camera type National model WV-1004E. Peter VK3BK (03) 679 1696.

● **KENWOOD TM-731A** perfect or vgc, with all mounts, box, instructions etc. Harry VK3BCG QTHR (03) 836 6266 ext 237 BH

WANTED QLD

● **ICOM IC-PS 30** or **IC-PS 15** power supply; ICOM IC-SP20 or **IC-SP3** external speaker; ICOM SM-8 desk microphone; CONDENSER tuning wide spaced plates (150 pF), REDUC-TION drive BC347 velvet drive or similar. John VK4SZ (070) 61 3286.

● **WORKSHOP** manual or circuit for Airmec signal generator type 407 made by Rancal or loan of one to copy. Will pay any costs involved. A Hinkler VK4AO, 41 Spenser St, Iluka NSW 2466, (066) 46 6587

● 11 YEAR OLD Boy studying for novice licence wishes to buy reasonably priced communications receiver. Jonathon (076) 61 7640.

● WISH TO Borrow PC File 5 manual, return guaranteed. Gordon VK4KAL (079) 85 4168 or post:- Freepost No 4 Rubyvale Qld 4702 to Gordon Loveday.

WANTED SA

● METER and high tension probe to 5 kV or probe only. Murray VK5BVJ QTHR (087) 38 0000.

WANTED WA

● 70 cm BASE station all mode. R Baker VK6QB QTHR (087) 52 2651.

MISCELLANEOUS

● PLEASE SEND some of your QSL cards to the WIA collection. Especially special issue call signs, pictorial cards and rare DX. Contact Ken VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.

● HOMEBREW COMPETITION open to all, cash prizes, Moorabbin District Radio Club Hamfest. Saturday, 14 May at Brentwood Secondary College, Glen Waverley, Map Ref 71-C-7. Competition details from David Armstrong VK3XJP/VK3PNL (03) 880 8286 (AH) or (018) 99 8865. Book space for preloved gear with Trevor Armstrong VK3JJR (03) 720 7609 AH. Extensive trade exhibits, free parking, entry \$3.00. Food available 10 am to 3 pm.

BF

AR 20 YEAR PLUS INDEX

IBM format 5¼ or 3½
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.DBF file \$10.00

ASCII \$10.00

Hardcopy
printout \$10.00

.EXE software &
.DBF file

5¼ inch disks \$12.00

3½ inch disk \$10.00

Prices include disk
(where applicable)
and postage.

AR 20 YEAR INDEX
PO Box 300
Caulfield South VIC 3162

Editor's Comment

Continued from page 3

who developed the coherer from Branly's findings, was greatly influenced by Hertz, and was one of the first to realise that electrical discharges were oscillatory.

Preece, who became Chief Engineer of the British GPO and eventually Sir William, was greatly involved with Marconi's demonstrations.

So there we have the briefest of the thumbnail sketches of a few of those who laid the foundations, first of amateur radio, but eventually of the massive communications system which now covers the globe with electronic Babel (or should that be "babble"?). I promise you there is much more to come!

I wonder which present day names will be remembered in the 2090s?

Bill Rice VK3ABP
Editor

ar

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details: eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

*Eight lines per issue free to all WIA members, ninth line for name and address.

Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

*Copy typed or in block letters to PO Box 300,

Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.

*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics

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☐ Miscellaneous

☐ For Sale

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Name: Call Sign: Address:

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All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

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CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

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Available only until stocks are exhausted. \$4.00 to members, which includes postage within Australia.

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The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

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Fill out the following form and send to:

The Membership Secretary
Wireless Institute of Australia
PO Box 300
Caulfield South, Vic 3162

I wish to obtain further information about the WIA.

Mr, Mrs, Miss, Ms:.....

Call Sign (if applicable):.....

Address:.....

State and Postcode:.....

WIA Morse Practice Transmissions

VK2BWI Nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm

VK3COD Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz

VK3RCW Continuous on 144.975 MHz 5 wpm, 10 wpm

VK4WIT Monday at 0930 UTC on 3535 kHz

VK4WSS Tuesday at 0930 UTC on 3535 kHz

VK4WCH Wednesday at 1000 UTC on 3535 kHz

VK4AV Thursday at 0930 UTC on 3535 kHz

VK4WIS Sunday at 0930 UTC on 3535 kHz

VK5AWI Nightly at 2030 local on 3550 kHz

VK6WIA Nightly at 1930 local on 146.700 MHz and nightly (except Saturday) at 1200 UTC on 3.555 MHz.

Divisional Bookshops

The following items are available from your Division's Bookshop
(see the WIA Division Directory on page 3 for the address of your Division)

	Ref	List Price		Ref	List Price
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Ant. Compendium Vol 2 Software 5.25" IBM Disk	BP290	\$22.00	Amateur Radio Awards Book - RSGB	BR557	\$30.00
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Cubical Quad Antennas - Hewlett - 1993	BP141	\$37.50	Operating Manual - ARRL - 9' x 11" Wire Bound	BR502	\$9.00
Up Log Antennas - ARRL	BR432	\$22.00	Operating Manual - ARRL - 4th Edition	BR189	\$24.00
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HF Antennas for All Locations - Mison - 2nd Edition	BR405	\$45.00	Passport to World Bands	BP449	\$24.00
HF Antennas for All Locations - RSGB - 1983	BR406	\$44.00	Prefix Map of the World - RSGB (annotated)	BR367	\$25.00
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Physical Design of Yagi Antennas - The Book	BP388B	\$20.00			
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			UHF/Microwave Experimenters Manual - ARRL	BR325	\$32.00
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			VHF 2nd Central States Con. 1987 - ARRL	BR172	\$18.00
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